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When Selling Roofing—

what are your talking points?

There is an appropriate and befitting Milcor metal roof for every type of building

IT'S practically an impossibility to sell anything you cannot intelligently talk about.

When such is the case, all roofings appear to be just alike—merely roofings. Your product will sell provided the customer doesn't meet a competitor with a product he can intelligently talk about.

The man selling "Milcor" Metal Roofing, Tile and Shingles can talk because

he has something to talk about. His sales are built on the Fire, Storm and Lightning proof qualities; the beauty of design, great weather resistance and permanence of "Milcor" Metal Roofings.

That's why "Milcor" Metal Roofings can be sold against competition. And don't forget that our advertising and splendid cooperation will work for you and help you.

Information and Circulars sent on request



"MILCOR"

METAL ROOFINGS

**MILWAUKEE CORRUGATING
COMPANY**

MILWAUKEE, WIS.

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THE SUPER-SMOKELESS FURNACE

*In All Sizes of SUPERIOR Pipe
and NEW IDEA Pipeless Furnaces*

THE only practical scientific soft-coal-burning heaters in successful operation. SUPER-SMOKELESS Furnaces have met with a great welcome in every soft coal section. Wonderfully clean in operation and exceptionally economical on coal—these high grade heaters are far better than ordinary warm air furnaces.

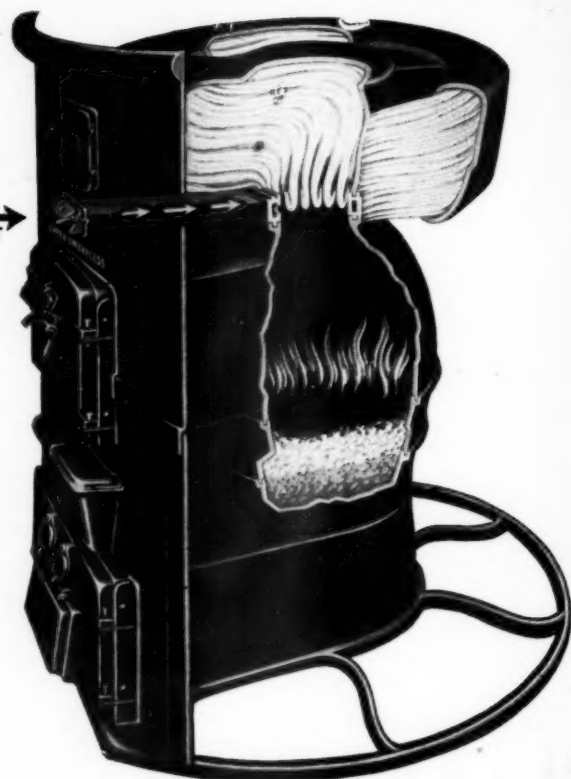
Sell heaters that have exclusive features of genuine merit, that meet a real need and assure a volume of business at a substantial profit.

Write for complete information about the SUPER-SMOKELESS

UTICA HEATER COMPANY

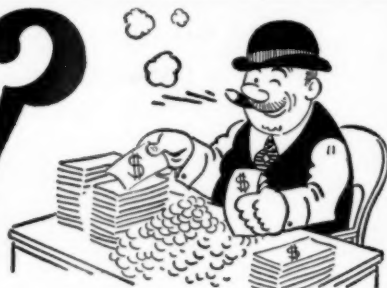
UTICA, New York

218-220 West Kinzie Street, Chicago, Illinois



Are You A Leader? in the Furnace Business?

Jake Stebing Makes Big Money.



**Send Postal
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A postcard will bring you our well-illustrated catalog with many good selling ideas. Write for it today.

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FRONT RANK TRADE NAME REGISTERED STEEL FURNACES

The first Front Rank in Auburn was sold in 1920. Now there are over a hundred Front Rank boosters. Jake Stebing had the right idea—he chose the best furnace, pushed it with our assistance, and now has a paying business. You may have the same opportunity.

*Shipments Made From St. Louis, Mo., Lincoln, Neb.,
Richmond, Ind. and Pittsburgh, Pa.*

HAYNES-LANGENBERG MFG. CO., 4545 N. Euclid Ave., St. Louis, Mo.



"Good Bye! We're Going Home—Front Rank is too Hot!"

Founded 1880 by Daniel Stern

Thoroughly Covers
the Hardware, Stove,
Sheet Metal, and
Warm Air Heating and
Ventilating Interests

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WHAT IS FIRST IN BUILDING A BIG FURNACE BUSINESS?

In the past, we believe, too much emphasis has been laid on the importance of good installation work and not enough on the matter of selling.

This statement may cause some of our readers to get excited.

But, really, there is nothing to get excited about.

For we realize as fully as the most ardent exponent of good installation, that a lasting business cannot be built unless every furnace is installed in such a manner as to give full satisfaction to the person who buys it or has to live with it.

But some of us have forgotten this very important fact—

That a furnace must be sold before it can be installed.

This may sound trite, but when it comes down to real things, the fact remains that you won't get a chance to demonstrate your good work and expert knowledge of installation until you have actually sold that furnace.

Now, then—

We will admit that good installation work is the foundation, and in that foundation is contained the cement of real knowledge of the principles of warm air heating, and the stones of real knowledge of the particular furnace you want to sell and the sand of the knowledge of how to mix the two previously mentioned ingredients into a whole that will withstand all attacks.

But a foundation is utterly useless unless something is built upon it.

And so, all the knowledge you may possess pertaining to the three elements will be useless if you fail to build upon it the structure of personal selling.

And strangely enough—and yet not so strange, after all—here we have the same factors to work with and to apply:

Knowledge of the principles of warm air heating; knowledge of the particular furnace, and knowledge of how to present this knowledge to the prospect in such a manner that he will sign on the dotted line.

Why do the furnace manufacturers send salesmen to you?

Why do they advertise in publications like *American Artisan*?

Why do they not just make furnaces and wait for you to mail them an order for a car-load?

Because they know that they would not do enough business to keep their foundries running at a profitable rate.

And your furnace business will never become a really prosperous enterprise until you go out after business instead of waiting for somebody to come to you and tell you that he wants to buy a furnace.

There are two kinds of fishers: Those who use the rod and hook and those who slay with a spear through holes in the ice. The real sportsman belongs in the first class.

Random Notes and Sketches.

By Sidney Arnold

Joe Montgomery, of the United Alloy Steel Corporation, hails from Virginia and likes to tell stories about the "colored gentlemen." Here is one of his recent contributions:

Down in Alabama a negro was arrested by a colored constable and taken before a colored justice of the peace. The justice couldn't read, but he frowned portentously over his spectacles at the culprit, and began turning the pages of a fat volume on his desk.

"Niggah," he said, "dis am de statutes ob de State of Alabamy, and ah'se going fru it till ah finds de bigges' fine fo' such cases made an' provided, and ah's going charge you dat fine." He mulled the pages over slowly for several minutes, then announced: "Dis yer cote fines you sebenteen dollars an' a half."

The defendant immediately paid the fine and started for the street, but the constable followed and whispered to him: "Niggah, you am jus' a plain fool. You could a ahgued wid de jedge and got dat fine cut to a dollah and a half." "Huh," was the reply. "Ah knows ma business, man. Ah kin read, an' ah knows dat want no statutes of Alabamy de jedge was lookin' at. Dat was a Montgomery-Ward catalog, and de jedge was fussin' roun' de tinware section when he fines me. If ah'd ahgued like as not he'd a turned ovah to de automobile depahment."

* * *

Some days a feeling hits me—as I suppose it hits most everybody some time—that when it really comes down to brass tacks, people don't care very much whether I am alive or not. Things go wrong, kicks come in for little trifles and no one has a good word.

And then, in comes a letter from one of our subscribers telling me how much he appreciates this or that department; another subscriber says

that we have helped him by one suggestion more than he can pay if he should keep on subscribing for fifty years; a third one wants reprints of an editorial to distribute to members of his organization; a fourth requests permission to reprint another editorial in his house organ, and so on—all on the same day.

And then everything is sunshiny and lovely and we are feeling happy again.

The life of a business paper man is one continual chain of pleasant and unpleasant things.

Just as is that of any other kind of a man.

So when the day is dark, and we feel down in the mouth, just let us think of the many pleasant things that have come to us in the past and look for those that are sure to come.

* * *

I had written a letter to Charlie Silvester of the Winchester folks asking him to give me a long list of names, but this was what I got in reply:

"My tYpust is oi hor vacution,

My trpist's awau fpr a week,
My trpudt us in hwr vacarion.

Wgile thse damu kews pply hudge
and seek.

Cjoras:

"Oy, breng boxk, bting bzek,

Brung becj mu bOnnie ti my, tp
mr;

B(&ng b\$Xj, b6nh, bicx,

Pjing bozk m% beinino-o mx;
Ch Helk?"

* * *

Most men have different habits at home than when on a visit. Harry Beaman, Indiana state representative for the "Front Rank" furnace folks, arrived in New Albany, Indiana, after supper one evening and immediately called up R. A. Huncilman, who handles the "Front Rank" there. Dick was in bed. Beaman reminded him he did not

go to bed at seven when he was in St. Louis attending the convention. "No," replied Huncilman, "I didn't come to St. Louis to sleep."

* * *

Some people like to play the piano and can't, while others who can have to be coaxed. Those who were at Mr. and Mrs. Biggs' house the other night evidently belong in the first class, according to the following conversation:

"You make me so angry!" stormed Mrs. Biggs after the company had left. "Why do you insist on sitting on the piano stool all evening? Everybody knows you can't play a note."

"Neither can anybody else while I'm sitting there," explained Mr. Biggs placidly.

* * *

Here is another story from Daddy Ross, of the Henry Foundry & Furnace Company, and his Irish host during his fishing outings in Wisconsin:

Pat owned a gravel hill on the outskirts of the town, and one of his neighbors, who had recently come up from Columbus, Ohio, asked him how much he wanted for a load.

"Tin cints," said Pat, "if ye haul it yirsilf."

"Surely cheap enough," was the reply, "and I shall want about six loads. But do you know that if you had that gravel hill as close to Columbus you could get \$5.00 a load?"

"Indade," says Pat, "and now I'll be after telling ye something ilse. If I had this here Long Lake in the place where some folks I know are going if they don't change their ways, I could get \$5.00 a dipperful for the water."

* * *

He was the bashfullest of all bashful lovers, and he was vainly fishing about for a word of encouragement from her small brother.

"Does your sister—ah—ever speak of me?" he inquired.

"Nope," replied the loyal child. "Sis is funny that way. If she can't say somethin' good about anybody she won't say nothin'."

L. R. Taylor Tells How to Get Best Results From Various Fuels in Warm Air Furnaces.

He Maintains That It Is Possible by Proper Firing to Obtain Three Times as Much Heat as Some Are Getting.

A BOOKLET written by L. R. Taylor, of the International Heater Company, and distributed by coal companies contains a number of valuable suggestions for the user of warm air furnaces with reference to fuel economy.

We quote, with permission of R. W. Beach & Company, by whom the booklet has been copyrighted, as follows:

General Instructions for Fuel Saving and Operation.

Anticipate the heating demand by firing promptly when the outside temperature begins to drop, or the wind increases. The house must be kept at a uniform temperature during the day, and not allowed to drop more than 10 degrees during the night.

The automatic regulator will save many times its value in coal. Keeping the house temperature at an average of 70 degrees instead of 75 degrees, with an average outside temperature of 40 degrees, means a saving of 17 per cent in fuel consumption.

Keep your heater free from soot. One-eighth inch soot covering steam or hot water boiler surfaces reduces the efficiency 28 per cent, yet it is quite common to find heating plants where the soot is from three-quarters inch to two inches deep in the boiler flues or furnace radiators.

Clean ashes daily. Grates must be true, not warped, must move easily and have no broken places for coal to drop through. Unburned, or partly burned coal should not appear in the ashes at any time. Never attempt to reburn ashes. They will form clinkers, chill the fire, and use up good coal to keep them at the same temperature as the remainder of the fire.

Be sure your draft control is operating properly and that you understand the operations. Draft control is one of the most essential

things to understand if fuel saving is to result.

Check up your own building carefully. See that there is not more than a slight air leakage around doors and windows, for if there is, a few dollars spent in weather stripping them will save you many dollars on your coal bill.

Covering the hot water or steam boiler and piping in the basement will mean a saving in fuel for years to come. Uncovered, they are losing heat and causing you to burn coal to furnish that wasted heat.

Keep as much humidity in the air as you can. Have the water pan in your warm air furnace full all the time, even though you must add water each time you care for the fire. Dry air is likely to be dusty air and dusty air is an irritant. Moisture in air carries and retains heat and causes settling of dust particles. Moisture pans for hot water or steam radiators will prove a very good investment. A good test of humidity is to notice if your windows are well frosted on the inside during a cold day.

The heater as well as the system, as a whole, must be kept in first-class condition, and defects of any sort repaired immediately. Satisfactory operation and sanitation require that all ducts, registers and radiators, be kept clean and free from dust, cobwebs, or other accumulations.

Damper Control.

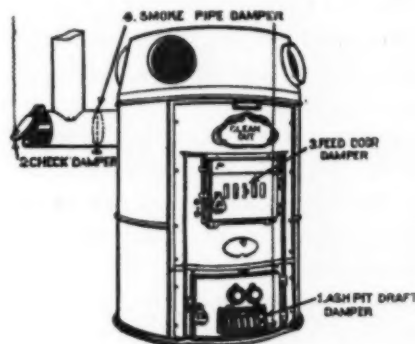
Nearly all warm air furnaces, round and sectional boilers have the following dampers:

The draft damper, generally a lift or slide door in the ashpit door, admits air for burning the fuel. Proper control of this damper in burning certain kinds of soft coal is most important.

The check damper is one that admits cold air into the smoke pipe, but is not always placed as shown

on the cut. This damper is also of great importance in the control of soft coal. Damper No. 1 and No. 2 should be connected by chain to the first floor, so the adjustment of these two can be controlled without going to the basement.

The No. 3 damper can be made of more importance than commonly supposed. In burning soft coal, if it is left open after firing, it admits air over the top of the fire and burns the gases being distilled, that otherwise would be lost. However, after the coal is glowing and there is no evidence of smoke, this damper acts as a check on the fire, and should be shut one hour after firing with hard coal, and one-half hour after firing with soft coal.



Showing Position of Check and Smoke Pipe Damper.

Leave it open always after banking the fire for the night.

If there is no smoke pipe damper in your installation, and you can hold your fire nicely for long periods with your other dampers, you do not need one. It is of most value in the case of excessive chimney draft and of windy weather, as partly closing it cuts the capacity of the smoke pipe down to normal. If used, it should always be placed in the smoke pipe between the heater and check damper.

When adding fresh coal, always have damper No. 1 and damper No. 2 closed and damper No. 4 (if there is one) wide open. If this is done, and smoke puffs out the feed door, it is a sure indication that the chimney needs examining or that possibly the smoke pipe or heater need cleaning. Do not put off remedying this, for until you do, you are simply throwing coal away.

Damper No. 2 should never be opened immediately after coaling, but damper No. 1 should be for a few minutes, to burn off the gases. The length of time depends on the draft, and then damper No. 1 can be closed and damper No. 2 opened so as to maintain an even fire and house temperature.

Firing Warm Air Furnaces. Hard Coal.

Keep a deep fire. You cannot economize by firing often and having the fire low in the firepot. If a deep charge will not burn through, look into the draft conditions. The firepot should be level with feed door and in extreme weather rounded up above the level of the door. *There is no exception to this rule.* In mild weather do not shake the grates, but allow the ash to accumulate on top of them and help retard combustion.

Never use a poker over the top of the fire or shake the grates too often. A thorough cleaning in the morning by shaking the grates until the fire shows brightly over them in the ashpit is sufficient in moderate weather. In severe weather twice a day should be enough.

Be sure there is no slag or clinker in the fire. It is possible to have a fire burn brightly on top, show red on the bottom and still have no heat. The air must come through the grates and coal to get the maximum heat. A clinker not only takes up the space that would otherwise be live heating coal, but also takes heat from the live coal in the firepot to keep it red. If you cannot gently shake the grate bars and have the ash come through, look for clinkers.

At night during severe weather, shake the grates and add coal until it is well rounded up in the firepot. Keep the drafts on for a few minutes to burn the lighter gases and start combustion, and then check down for night by opening damper No. 2 and partly closing damper No. 4. The adjustment point of these must be learned by the operator, for they differ with draft conditions and they should be set so that there is a good charge of coal left in the morning. Should the

bank burn out too much overnight even when dampers have been properly regulated, then bank with smaller size of coal.

Upon arising, open the drafts before you do anything else. If the fire is low, add a small supply of fuel, and try not to cover up all the red coal. If you have a good charge of fuel left, operating the drafts should rapidly raise the temperature.

When the fire is burning brightly, shake the grates and add a full charge of fuel. Allow the drafts to remain open until the coal shows a blue flame burning brightly through it, and then check so as to maintain the temperature desired by closing damper No. 1 and opening damper No. 2.

A fire built as described should last for hours without recharging, making it necessary to change only the adjustment of the dampers from the room above to maintain the desired house temperature.

Coke.

Coke requires the least draft of all fuels, and it is advisable to have damper No. 4.

Connect regulator chains so that when damper No. 1 is one inch open, damper No. 2 is also one inch open. Nut size coke will hold fire much longer than egg size. Or, a combination of half of each gives very good results. Nut size can be very successfully burned on the average furnace grate if directions are followed.

To bank fire at night, do not shake the grate, but level the bed of coals and fill up with fresh coke, putting just as much on as you can.

Open the slide in feed door or No. 3 damper, close No. 1 damper tight, open No. 2 damper wide and partly close No. 4 damper.

If trouble is experienced in holding bank use some smaller size of coke or mix with some anthracite.

In the morning if the fire is low, do not shake the grates, but add a small supply of fuel and open the drafts.

When the fire is nicely started, shake gently if severe weather, stopping, however, before red sparks

appear in the ashpit. Fill as full as possible with coke.

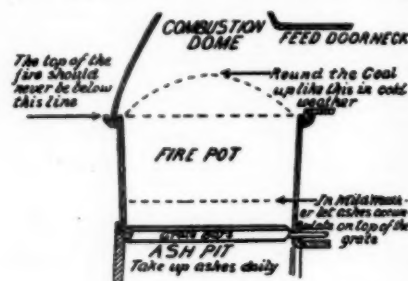
Set damper No. 1 so as to be open one inch and as soon as the house temperature is up, set No. 2 damper well open.

Never carry a low fire. If it is mild weather, just shake the grates once every three or four days, as allowing the ash to accumulate brings the live fire up higher in the firepot and helps control the draft.

Coke is clean, easy to handle, quick to heat and works on a very poor draft, but it is hard to control and must be watched carefully until the operator is accustomed to firing as outlined.

Pocahontas or Caking Soft Coal.

The most trouble experienced in this type coal is due to smothering



There Is No Economy in Firing Often and Having Fire Low in Pot.

the fire or completely covering the red coal when adding a charge.

In order to get the best results, each night when you bank the fire, put aside enough fuel to last the next day and *wet it thoroughly*. This will make it cake better and help to keep fine particles from falling through to the ashpit.

Pocahontas coal contains 17 per cent to 20 per cent of coarse coal (lump, egg, nut) and unless your smoke pipes and flues areas are at least eight inches in diameter, you will not get good results in burning this class of coal alone.

Before banking the fire for the night, leave the drafts on, so as to get the coke in the firepot burning freely. Shake the grates until the fire shines in the ashpit, and then break up the fire, remove clinkers and push the hot coke around the edges of the firepot.

Break up any large lump to not larger than a cocoanut and put the

lump around the outside edge of the firepot. Fill up the center with the damp fine coal, rounding up to center of fire door. (See Figure 3.)

Keep the drafts on for a few moments, and then check by closing damper No. 1 and damper No. 2.

With a normal draft, adjust the chains connecting damper No. 1 and No. 2 so that when the damper No. 1 is shut, damper No. 2 is also shut. On banking, open damper No. 2 about two inches to three inches and place a match under damper No. 1 so as to just have it open. It may be necessary to change these adjustments to suit the draft and only the operator can determine this.

Upon arising, open the drafts wide, break the coke and there should be enough left to bring the temperature up rapidly. If the fire is low, wait a few moments to allow the coke to burn freely, and then sprinkle a little lump and fine coal over the fire, never complete covering it.

When ready to put on a heavy charge, break the coke again and level it across the firepot. Wait a few minutes with drafts on, and then push the coke to the outside and fire the fine coal in the center, putting the lump around the outside. Allow the drafts to remain on for a few minutes and then set them for maintaining temperature.

In average weather have the No. 1 damper about two inches open and as the temperature comes to the desired point, shut No. 1 damper and this usually checks sufficient to hold the temperature. Should temperature continue to rise, check further by opening damper No. 2.

Fuel of this nature is very sensitive, and good control can be had normally with No. 1 damper as stopping the air from entering at this point checks combustion which will start again quickly if No. 1 damper is opened as required.

Never use a poker from the top on a fresh charge of this fuel if it does not ignite in a reasonable time. Use the poker to pull away a little coal from the outside of the firepot toward the middle to allow the flame to work through.

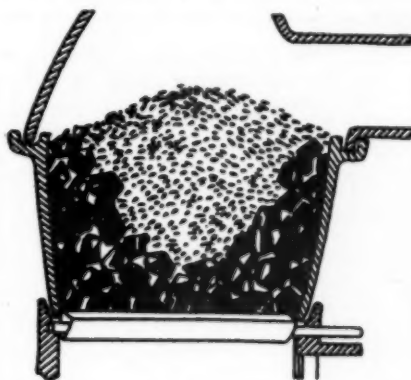
After the charge of fuel has been on some time, and is caked, you can break it with the poker, but do not try to turn it over. Merely break it in two and the coke will soon start to burn freely.

Free Burning or Non-Caking Soft Coal.

This grade of soft coal requires less draft than Pocahontas or caking coal and since it burns through the body of the coal from the grate line up, it needs different treatment in firing.

Break all lump into smaller lump no larger than a cocoanut or, better still, lump the size of your fist.

Adjust damper chain so that No. 1 is one inch open and No. 2 is also



Do Not Shake Grates Often, Morning and Evening Is Sufficient.

one inch open as this gives you the control for maintaining an even fire for a long time.

When banking for the night, put enough coal to one side to last the next day and *dampen it thoroughly*.

Remove clinkers from your fire at night and shake grates until fire shines in ashpit.

Leave slide in feed door damper No. 3 wide open.

Level the fire bed and fill full of coal putting lump on first, then covering with the finer coal, but do not cover the entire bed with fresh coal. Leave at least one point where the flame is coming through the bed of coal. Keep damper No. 1 wide open for at least five minutes after putting the coal on the fire.

With this kind of coal, it is usually advisable to have damper No. 4 in the smoke pipe, as it burns very freely and rapidly and is sometimes hard to hold a good fire over night if the draft is strong.

Set the dampers so that No. 1 is closed tight and No. 2 is wide open. If you can hold a good fire in this manner, you do not need No. 4 damper but if the fire burns out so that it is very low in the morning, then damper No. 4 should be turned in smoke pipe so as to further retard the draft.

In the morning, turn on drafts, remove any clinkers and add lump coal in a small quantity, as there is usually not enough left from the banked fire to bring up the house temperature.

After warming the house with the fire just built, break up with poker and fill up as for the night firing.

Set dampers so that No. 1 is wide open and No. 2 is closed. In about fifteen minutes on normal draft, set dampers so that No. 1 is one inch open and No. 2 is one inch open. This is the neutral point of control at which fire should operate.

If the draft is so strong that the fire continues to increase, set damper No. 2 about two inches open and this will close damper No. 1 entirely.

Damper No. 2 is very important in controlling this type coal and if the heater is handled as described the charge will last for some hours. But it is necessary to change the damper arrangements from time to time by closing No. 2 and slightly opening No. 1, and this is accomplished by the regulator chains as they both work together.

Do not shake the grates often, morning and evening is usually sufficient. Always keep a deep fire, the less number of times you fire, the less number of times you add fuel, the greater the economy.

Never leave damper No. 1 open for over fifteen minutes on a good draft. This fuel ignites very quickly and will burn at such a high rate that castings on the furnace will become overheated and in time damaged. Get it well started, then cut the draft down and burn it slowly.

EDITOR'S NOTE.—Mr. Taylor's booklet can be secured from R. W. Beach & Company, 30 North Michigan Avenue, Chicago.

(To be continued)

\$1,595.09 Was the Price for This Warm Air Furnace Job, but There Was No Dickering.

Cleveland Furnace Installer Had Some Pep Injected into Him and It Made Him Ask a Decent Price for a Good Job.

HERE is a story of an incident that really happened.

It tells about a furnace installer who had "nerve" enough to think of figuring on a heating job for an old 18-room residence which had been transformed into an office building, but he was afraid of losing the job, because he could not see how a couple of rooms in the rear could be heated without a fan, and he thought that this would mean a danger of a hot water or steam "engineer" getting it.

The cost to the owner for the job, which the writer knows is fully satisfactory, was \$1,595.09.

The story was written by a man who *believes* in warm air furnaces as the best means for heating residences and who knows how to sell them on that basis, rather than merely on price.

You will get a real idea that you can make use of with profit to yourself.

Read on:

Better Furnace Work—Better Profits

If we were to tell the average business man the margin of profit in the usual furnace contract he would say, "How can he stay in business?" He doesn't stay in business. He works for the other fellow and not for himself, and that is not business.

The solution is better furnace work. The kind that stands out in bold contrast. This gives you something to sell. A claim on a higher price and better profits.

A certain furnace man in Cleveland told me that it was absolutely useless to talk quality and higher price in Cleveland. I insisted he was wrong and being a firm believer in the effect of proof, I asked him to cite me to a prospect, so that I could demonstrate that he was wrong. He named an old building, an 18-room residence, each room converted into an office where 70

degrees was necessary. I asked him if he thought he could heat the house to 70 degrees with a furnace system, and he confessed that he had doubts about the extreme rooms, especially the manager's office on the second floor, northwest extreme rear.

In fact, to his mind it would be impossible. Then I asked him how he expected to sell an idea to an intelligent man when he did not believe in it himself. Up to this time

He Got the Contract

1 No. 266 Mueller Heat Generator, complete..	\$ 411.00
1 No. 1000 Automatic Furnace Fan	80.00
18 Registers and Grills.	72.00
3 Wood Faces	18.50
510 Feet No. 24 G. I. Cold Air Ducts at 20 cents	102.00
Warm Air Pipe and Risers	211.50
Angle Iron and Hanger Rods	7.00
Freight and Drayage....	33.00
8 Days' Labor for Mechanic and Helper, at \$16.00	128.00
Total	\$1,063.00
Overhead, 30 per cent....	318.90
	\$1,381.90
Profit, 10 per cent.....	138.19
	\$1,520.09
Engineer's Service	75.00
Total Contract Price....	\$1,595.09

this man had wasted time and money on this prospect, trying to sell something he did not believe in himself.

The colossal error here is: If he had a semblance of chance to sell this job under the circumstances, he is in the wrong business, because any man who is capable of selling an idea that he has no confidence in himself is a "Whiz Bang Salesman."

Firms with worthy articles are running wild for "Whiz Bang Salesmen" and Whiz Bang Salesmen many times "draw down" more money than the manager.

In any event, this man would be wasting valuable time and good

money, because there are lots of articles which are worthy of our confidence that he could sell.

My advice was this: Change your attitude of your business.

This is pertinent advice. Thousands of furnace men need just this advice.

To repeat: Change your attitude or your business. If you want profits instead of brain racking, worries, incessant criticism and nose-to-the-grindstone existence—!

Enough preaching. Let's get back to the Cleveland story.

What happened? I asked, why he did not think these rooms could be heated, and he said, "because I am afraid they will not get the circulation."

"You know that if the furnace has sufficient grate area, radiating surface, fire travel, combustion chamber, stack size, and height, and if the coal is burned to heat, the air will heat the room if you could only get the air to the room?"

"Precisely," he said.

"Do you know of a furnace that has all these requisites?" I asked.

"Oh, yes," he said, "I know that furnace."

"You are positive of this furnace's capacity?"

"Abso——! Posi——!"

(Here he proved his belief in his furnace.)

"What about the chimney?"

"Oh, well, the chimney must be provided in any event. The steam system must have even more stack height than the furnace plant because of the greater friction in the boiler."

"Well, where is the hitch?" I said.

"Well—er—I"

Here I interrupted: "The hitch is in being unable to maintain a flow of air to the rooms where the boss sits. Don't you know that they put in and take out of the Hudson River Tunnel millions of cubic feet of air every hour? Why, they supply air in schools, theaters and factories that are ten times as long and ten times as wide as this 18-room house."

"Yes, yes," he said, "but they are fan jobs."

"Just so!" said I. "*Fan jobs! Forced air circulation! Forced air heating! Heat with forced air!*"

Then I waited for the reaction.

For the time I had him stumped.

He was thinking, he was fighting back; his face lighted up; he was pleased.

He had me. "The cost?" he radiantly said.

"Cost!" I yelled back at him (as yelling was a good card at this psychological moment).

"If you don't get this man's job with a Forced Air System he will pay \$3,000.00 for a steam plant and tear up the house to boot, dragging radiators all over the place and moving desks, bookcases, etc., to make room for the radiators.

"What has your cost got to do with it?"

"You will ventilate his office, keep the air in motion, humidify the atmosphere, and in so doing you increase the health, comfort and efficiency of each and every one in the building.

"This man can be made to forget the cost if he sees these points as you see them now. Am I right?"

"You are right now. By G—, you are right! Come, and let's go see this bird right now."

"Oh, no," said I, "you are the salesman here; you were conceited enough to think you could sell a fake to the extent, at least, that you have spent time and money. You certainly ought to sell a proposition that abounds with advantage and merit."

He Got the Contract.

Estimate Sheet

1 No. 266 Mueller Heat Generator, complete....	\$ 411.00
1 No. 1000 Automatic Furnace Fan	80.00
18 Registers and Grills...	72.00
3 Wood Faces.....	18.50
510 feet No. 24 G. I. Cold air Ducts at 20 cents...	102.00
Warm Air Pipe and Risers	211.50
Angle Iron and Hanger Rods	7.00
Freight and Drayage.....	33.00

8 Days Labor for Mechanic and Helper at \$16.00	128.00
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Total	\$1,063.00
Overhead, 30 per cent...	318.90

	\$1,381.90
--	------------

Profit, 10 per cent.....	138.19
--------------------------	--------

	\$1,520.09
--	------------

Engineer's service	75.00
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Total Contract Price...	\$1,595.09
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Data

Temperature guaranteed, 70 degrees F. at zero.

Total B. T. U. heat loss....168.000

Cubical contents

C. F. M..... 2.000

Grate area, square feet..... 5.3

Coal, pounds per hour..... 26.5

B. T. U. 13.500 per pound, 65 per cent efficiency.

Total capacity, B. T. U....232.537

Factor of safety, 35 per cent.

EDITOR'S NOTE: Please note that the price listed for the Mueller furnace is not the net cost; that all the items listed carry a varied percentage of "margin;" that after all gross costs are added the overhead is put on; that a profit of 10 per cent is added, and that on top of that there is a charge of \$75.00 for "engineer's services."

This installation also proves that it is quite possible to sell a good furnace job at a price that fits the job—a good job at a fair price.

How Many Assistant Salesmen Have You Working for You?

R. B. Monfort, Secretary and General Manager of the Farquhar Furnace Company, uses the "FarQuar Firebox" as a means of communicating with the installers who sell FarQuar furnaces; it is in the form of a letter, and from one of the most recent issues we quote the following excellent suggestion which can be used by any furnace installer who prides himself on his work:

Assistant Salesman

"Sometimes one can learn a mighty good lesson just by listening

to the other fellow's experience. A good one came to us the other day and it is worth passing along.

"A certain merchant in a mid-western town was handling a piece of home equipment which sold for a good price. He had succeeded in selling several, then his sales slowed up for no apparent reason. Calls for the article just 'dropped off.'

"One day, in conversation with one of his lady customers, who had purchased one of the machines, he mentioned how sales had fallen off. The lady was rather surprised for she was so well pleased with her purchase, therefore she thought it strange other women were not interested.

"She then asked if he had mentioned the machine to certain other ladies who were her personal friends. Being told that he had not done so specifically, she suggested he do so, using her name.

"Can you guess the result? Yes, he sold 100 per cent of them—then got busy with all the other users, asking them for the names of their friends to whom they would recommend the machines.

"As a result of that eye-opener, that merchant boosted his profits many per cent, and learned the valuable lesson of customer coöperation.

"Why not dig up all your FarQuar users and ask them for a list of friends to whom they would recommend the FarQuar? Such a list is invaluable and can be turned into many profitable customers.

"A satisfied customer always makes a good assistant salesman—and in most cases one that is willing to work without a salary.

"How many of these salesmen are working for you?"

Jim Says Every Heating Man Should Read AMERICAN ARTISAN Regularly.

TO AMERICAN ARTISAN:

Your paper is fine. Every heating man should read it regularly.

J. M. BEECH & SON.

Melrose Park, Illinois, November 10, 1923.

Sheet Metal Men Should Work Out Patterns of Cornice and Skylight Examples Found on Schools and Hotels.

Sketches and Designs Made in This Way Are Good Practice, as They Hasten Experience and Produce Creative Energy.

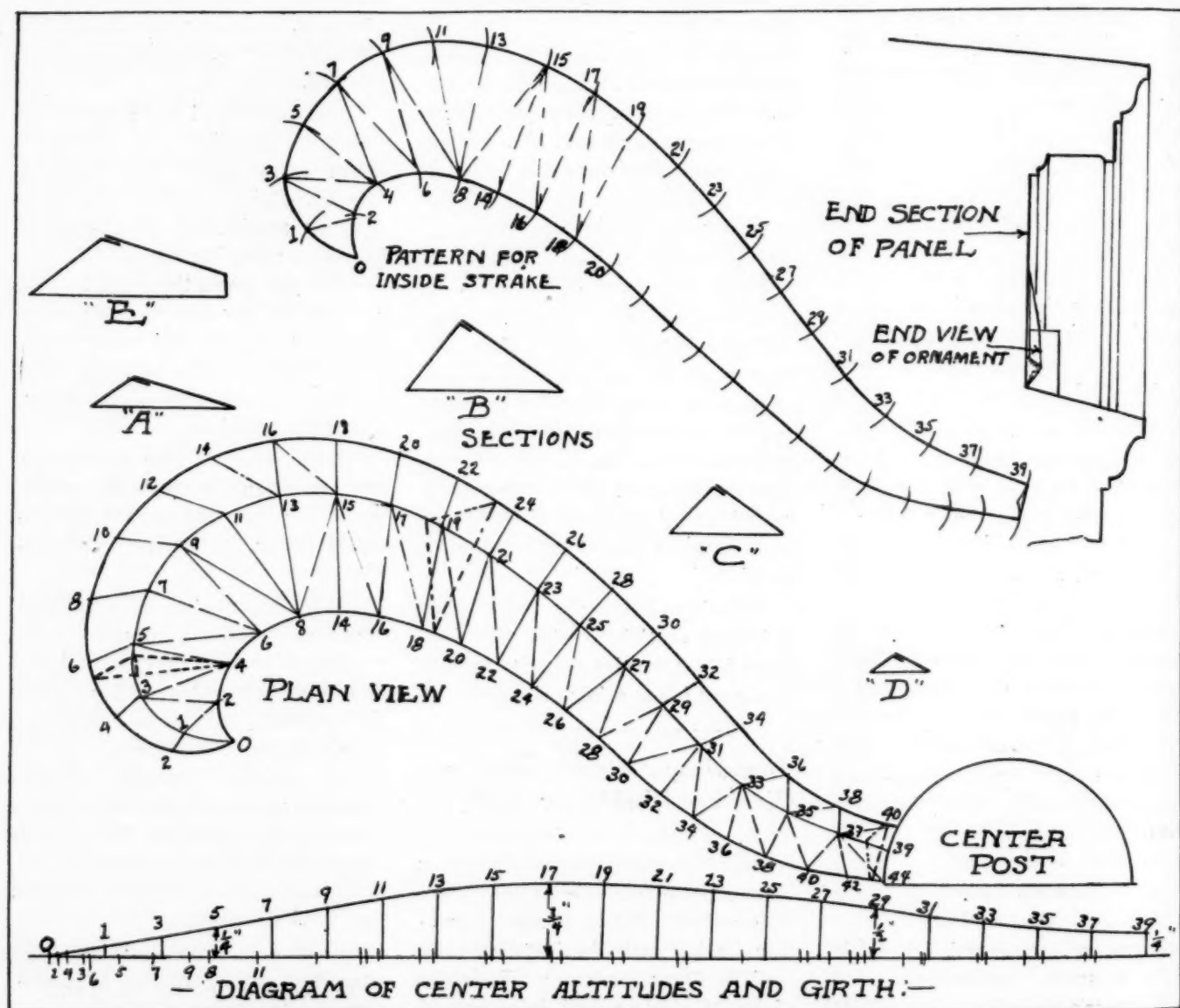
Written Especially for AMERICAN ARTISAN AND HARDWARE RECORD by O. W. KOTHE, Principal, St. Louis Technical Institute, St. Louis, Missouri.

IN ARCHITECTURAL cornice work and the making of gables and pediments, the panel thus formed is often enriched by various designs of ornament. Some of these

the panel there may be four or six of these designs, each one being of a different length and curvature. This requires each element to be treated separately, and judging for

where the ornament is to be made of galvanized iron, it really must be developed by triangulation.

The first step is to describe the center post and then in their proper



Working Drawing Shows How Pattern for Gable and Pediment Ornaments to Fill Blank Spaces Are Made.

are made one way and some another, and in this case we shall show that an irregularly curved design is difficult to develop. The purpose of these ornaments is to fill the blank panel space so that in each half of

both halves there would be two ornaments made of each pattern. Workmen who are skilled in raising zinc or copper could, no doubt, make this crease with little difficulty, while others would have trouble, but

position sketch in each ornament. This is a matter of trial, as each element must be put in by "feeling" rather than by stiff formal description. This is not an easy matter and may require considerable rubber for

erasing before graceful curvatures are determined upon. When the outlines are established, the center line is filled in to harmonize with the design. Some workmen may prefer to sketch in the center line first and then to work the outline around the center line, which practice is all right as long as the proper result is produced and a proper division of space is made between the various elements of the ornament. Another feature of this ornament is that the rise in the center line varies, it being a quarter inch high at the center post and gradually raises to three-quarters and then works down to zero at the point. This requires a special girth developed along the center line.

So, we first divide all three lines into the same number of equal parts, or at least to such a disposition that will make convenient development and overcome confusion of lines as well as not take too long in development. After this, lines are drawn from one point to another, as shown. The heavy dotted positions in the plan view represent the section showing the variation in the rise of the center line from which the diagram is constructed. We pick each space of the center line as 0-1-3-5-7, etc., to 39 and transfer them on a straight line, as in the lower diagram. Then from each point we erect lines, as at 5, 17, 29 and 39, and measure the specified altitude, as shown. At their points we sketch in the top curve, making it as uniform as possible, which will be the top center line straightened out. After this, we erect all the other lines from the base line to this curve and that gives us the height or altitudes for the triangles under development. In this case we only develop the lower or inside strake of ornament, so we pick the triangular lines from plan, as 1-2, and set it from the base line over as shown, then 1-2 will be the true length. In the same way we pick lines 2-3 and use point 3 in base line and mark the line 3, then 3-3 will be the true length. In this way the vertical lines in our diagram will always be the altitudinal

line corresponding to the center line of our plan, and we set off these triangular plan lines on each side and develop the pattern simultaneously so as to avoid marking points in lines. In this way we start from the point 0 and use 0-1 from diagram as girth, and also 0-2 from plan as girth. Then with true lengths 1-2 from diagram and 0 as center cross arcs in point 1. This gives us the start for triangling the rest of the strake. The girth spaces for the lower side are all taken from plan in numerical order, while those from the upper side of strake are taken from the diagram.

The outer strake for pattern would be developed in the same way, but using the girth from the outline of plan as 0-2-4-6-8, etc., while using the girth as 0-1-3-5-7, etc., from diagram for the center line. In this way the girth alone, the center line of both inside and outside strakes, will be of equal length. Ordinarily a small lap would be allowed on one of the strakes similar as "A," "B," "C," "D" show. If time to be put in on them permits, the ornaments could be made as "E," although we believe by the time the workman has laid them off he can feel that sufficient work had been put in on them.

Some architects are rather particular about having the things they design worked out accurately, and in such cases their whims must be catered to, otherwise in the future such architects will specify substitute material on the grounds that the sheet metal man says it is impractical to make the fine designs the architect specifies. One of the troubles with sheet metal cornice work is to make absolutely perfect mouldings by the hand cornice work. That is also why some architects say that sheet metal work cannot be shaped as they want it, and, therefore, they specify something else.

It is the sheerest folly to ignore sentiment in business. Dry facts, not quickened by a sentiment, by a feeling, an impulse of some sort, never drove a dollar into action.

This Simple Machine Will Save You Money and Do a Better Cutting Job.

Many an hour is lost in sheet metal shops because workers are doing irregular cutting jobs by hand when these jobs can be done far better and quicker with an inexpensive machine, such as the new Ryerson Bench Type Serpentine Shear, which is shown in the accompanying illustration.

This is a sturdy little machine, made for heaviest service. Frame is of alloy steel and cutting blades



New Ryerson Bench Type Serpentine Shear

of specially hardened tool steel. Will cut any width or length of material and any thickness up to 16 gauge, inclusive. The rotary cutting blades make smooth, even cuts without waste of material.

This machine would soon pay for itself in time saving alone, to say nothing of doing the job better.

The price is right. Any shop can afford one.

For further information write to Joseph T. Ryerson & Son, Incorporated, Lock Box U, Chicago.

Jack Stowell Says Thank You!

TO A. G. PEDERSEN,
Editor AMERICAN ARTISAN:

I want to thank you on behalf of the Aurora Sheet Metal Contractors' Association for your help in making our first banquet a success.

I also wish to thank your publication for the very fine publicity given our "doin's." We surely appreciate it.

JACK STOWELL.

Gowen Gives Sheet Metal Contractors Many Points of Useful Information on Copper.

Excerpts from an Address Delivered Before Sheet Metal Contractors' Association of Pennsylvania.

AT THE State Convention of the Pennsylvania Sheet Metal Contractors' Association, John F. Gowen, of the Copper & Brass Research Association, delivered an address on the subject of copper roofing, from which the following excerpts are quoted:

The opportunity of the sheet metal industry grows out of the fact that America has been passing through an era of "Something just as good." The result is the enormous waste resulting from buying cheap materials—then buying them all over again in a short time. The results of the research work of our Association show more than \$600,000,000 worth of metal is consumed by rust on American homes alone every year. This is but a small part of it all. Roofs that quickly rot, curl, warp and expire contribute to make this waste one of huge proportions. The opportunity was never so great for vigorous advertising to arrest this huge waste by creating an enlightened demand for good metal roofing.

Recently a reaction has set in. Home owners are tiring of replacing poor materials every few years. They are about fed up on "cheap-first-cost-talk." The logical roof is one of metal. It is logical because it is light in weight and assuredly fire-proof. In addition, a copper roof, properly grounded by downspouts, is the best possible protection against lightning. Metal roofs are attractive in appearance, will not crack, chip, curl, or warp in the weather.

Copper can be used as a roofing material in five different ways—ribbed, seamed, standing and flat seam, shingles and Spanish tile. Recent developments in the art of copper shingle manufacture mark a new era in the industry. The copper shingle has been made beautiful enough to satisfy the most aesthetic

taste, while, at the same time, the labor of laying has been lessened.

Material

Copper sheets are made in several degrees of temper or hardness. Experience has very definitely established the two best suited for flashings, gutters and leaders. The building profession has come to know these two as "soft" or "hot rolled" and "hard" or "cold rolled" copper. It is common practice to so designate the sheets in specifying or ordering.

The hardness of the sheets is determined by the reduction in thickness before reheating. The sheets are brought to certain thicknesses which will give the required final thickness with the necessary rolling. They are then heated to the proper temperature and finally rolled to the desired thickness and hardness, and allowed to cool.

In order to prevent misunderstanding and confusion and to make as definite as possible the kind of copper desired, it is recommended that the trade adopt the following terms:

Instead of	Use:
Soft	Soft (Roofing Temper)
Soft-rolled	Abbreviation: (R. T.)
Hot-rolled	
Hard	Hard (Cornice Temper)
Hard-rolled	Abbreviation: (C. T.)
Cold-rolled	

All flashings or whatever description should be of soft (roofing temper) copper sheets. There is no place in flashing or counter-flashing where soft sheets will not serve better than hard.

The material of all shaped gutters, eaves trough, leaders, cornices, etc., should be hard (cornice temper) copper. Its stiffness is necessary to maintain the shape, especially against ice and snow loads.

Gutter linings should be of soft copper. Those of any length are peculiarly subject to temperature

stresses. The continual warping, to which the sheets are subjected, soon fatigues hard sheets and cracks develop at the bends.

Laying Surface

We recommend the use of ship-lap for sheathing. Experience has shown that tongue and groove is apt to be driven too tight, therefore not allowing for contraction and expansion. Boards should be well nailed and spaced with due regard for the swelling that comes with dampness. It is good practice to sink the nail heads—though straight nailing will obviate this.

Over the sheathing a good quality of roofing paper should be used, resin-sized preferred. Satisfactory results are obtained without this precaution, but with the present grade of lumber used for sheathing, a cushion between copper and wood ought to be provided.

Fastenings

Copper sheets must not be nailed. This rule includes as a sheet any piece of copper over eight inches wide. Too much emphasis cannot be put upon the necessity for observing this rule.

Copper sheets and flashings must be cleated, and nailed with two copper nails. It is an open question whether the cleat should be turned over the nail head. It depends upon the kind of nailing the mechanic does. The purpose of turning back the cleat is to prevent the nail head from cutting the sheets. If the nails are properly driven this labor may be saved.

There are numerous places where nailing is permissible. All such nailing should be done with this in mind—that the sheet or strip must have freedom of movement. Nailing on one edge only permits it to move three ways from the nailing. Barbed nails should be used. I have seen otherwise beautiful jobs ruined by the wind because ordinary wire nails pulled out of the sheathing. This is especially noticeable on buildings where the roof is subject to heat, as in a factory where hot presses are used. Barbed nails grip the wood and do not pull loose, even though the wind lift the sheets, and

the interior heat dries out the sheathing.

Needless to say, none but copper (or brass) nails can be used with copper. The use of iron nails of any sort means quick destruction of the fastenings, because when iron and copper heat, with dampness to help, an electrolytic action ensues and the iron is destroyed.

Soldering

The secret of good seams is found in tinning and soldering. I honestly believe that most of the broken joints I have observed could be prevented if more thoroughness were used in these two details. There is only one kind of solder, and that is the best, known as "half and half," composed of equal parts of new tin and new lead.

The weakness of any composite structure, be it a steel frame building or a copper roof, is in the joints. It is imperative that these be made tight and strong. The best results are obtained from wide, well-sweated seams.

Bends

Many roofers tell us they experienced considerable trouble with built-in, or box, gutters. After a few years, cracks appear at the bends where the sheet turns up to form the sides of the gutters. I know of one large box gutter about 400 feet long, which has 161 cracks in it. There are two causes for this: First, hard copper; second, the bends are very sharp. Approximately, one-half of these breaks are at the bends where the sheet is held firmly in the angle, and so constrained from free movement. Any bend of more than 45 degrees should be made into a gradual or easement curve.

Expansion and Contraction

All materials are subject to variations in size and temperature changes. Water is the best evidence of this. Heated, it becomes steam, and in changing from a liquid to a vapor, acquires, through expansion, tremendous energy. Copper is subject to the same laws of nature. Its expansion is somewhat greater than that of iron and steel, and less than zinc and lead.

A strip of copper, one inch long, at 60 degrees, when cooled to zero, contracts in length to 0.99943 inch. If the temperature is increased to 120 degrees the length becomes 1.00057 inch. Now, if the strip is assumed as held securely in place the changes in dimension set up an internal stress of 10,400 pounds. The breaking strength of annealed copper is 36,000 pounds a square inch. There is obviously a factor of safety of about $3\frac{1}{2}$.

As time elapses, other conditions obtain. The strip loses its tenacity and becomes brittle. Constant recurring tensions and compressions create a state of fatigue, and the metal cracks and fails. As a matter of fact, copper sheets are never strained to the degree mentioned. If a copper roof were laid on a steel roof, for instance, the steel, too, would move under temperature variations and change in dimension.

From the above, it must be apparent that failure of copper, due to temperature stresses alone, are extremely rare. When, however, the copper is partially constrained, and a joint is provided where the cumulative movement in a sheet of any length can create a buckle, or a hinged action, fatigue will eventually destroy the ductility of the metal and fracture will result. Copper is a "live" metal. It will take abuse, but demands proper treatment.

Summary

Use 16-ounce soft-rolled, roofing temper, copper only. Never use lighter sheets.

See that the laying surface is smooth, well covered with good grade paper.

Use large, two-nail cleats, never skimp, place them not more than 12 inches apart.

Use copper nails only. Never nail if it is possible to cleat. If nailing must be done, arrange the sheet so it is free to move.

Use the best solder, and lots of it. Use heavy soldering coppers.

Avoid sharp bends in copper sheets.

Allow for movement of the copper at every intersection of planes by the use of large free lock-joints.

Building Operations Continue Unabated in Chicago—That of Other Cities Also Good.

Building operations in Chicago and suburbs continue unabated. Permits are largely for dwellings and apartment buildings, with generous percentage for industrial plants, etc. They are averaging more than \$1,000,000, according to statistics compiled by the Citizens' Committee to Enforce the Landis Award. This fine showing is being maintained in Chicago.

The total value of new building permitted for in the month just closed at 134 cities was \$187,822,241, as against \$157,526,857 at the identical cities in September and \$142,669,633 in October last year.

There is here indicated a gain of 19.2 per cent over September and of 31.6 per cent over October, 1922, the latter percentage of gain over a year ago being the heaviest recorded in any month since last April.

The Citizens' Committee is meeting all requirements for men in the various branches of the building industry. There has been an increasing scramble for sheet metal workers, lathers and plasterers, but the Committee's Employment Bureau is keeping pace with the demand. It is expected that November and December will run as high as \$30,000,000 in building permits, much of the construction work to be done this winter, with a lot left over for beginning in the early spring.

While labor difficulties are retarding operations in the east, particularly in Boston, there are no strikes in Chicago.

The demand for the sheet metal workers, according to the committee, has aroused ambition in the breasts of boys and young men to learn the lucrative trade, and applications are pouring in for entrance into the committee's apprentice school at 500 South Throop Street. The school, under the direction of C. L. Bailey, is running full blast.

When the sales department pushes and the advertising pulls, the product moves.

**Taylor Got His Man;
AMERICAN ARTISAN
Found Him.**

TO AMERICAN ARTISAN:

Please discontinue my advertisement for sheet metal workers. Am a great believer in advertising, and you have proved its effectiveness again, as you brought me many inquiries and we will surely secure the men we want.

Please accept our thanks for your promptness in forwarding the replies.

We have formed a sheet metal contractors' association here in Florida and want better mechanics to do better work than formerly was done in some places. We have had three meetings this year—in Jacksonville, Orlando and Miami. Our next meeting will be in Tampa. This is going to do a great deal of good for all.

Again thanking you, I am,

Yours truly,

W. G. TAYLOR.

Leesburg, Florida, November 6, 1923.

**Just Plain "Tinner" No
Longer Adequately Defines
Sheet Metal Man.**

Whatever the sheet metal working industry has been in the years gone by, it certainly has developed to that stage of importance today where it has become a profession. The Sheet Metal Man should no longer use the word "tinner" in selling his services to the public; he has a far more important position of responsibility than the tinner of old, with all due respect, however, to the venerable gentlemen who founded the industry. The problems of mathematical detail and fine workmanship which constantly confront the Sheet Metal Man are such as to take him out of the category of "tinner" and place him where he rightfully belongs.

So let's discard the word "tinner" from our signs, window cards and advertisements; let's be dignified in our profession; we know that we are rendering a necessary serv-

ice to the public, why continue on with the old, inadequate name which no longer represents us? Other industries have added dignity to the profession which they represent and have acquired greater respect thereby. Let's do the same.

**Fifty-One Copies of
AMERICAN ARTISAN
All Velvet, Says McNeal.**

TO AMERICAN ARTISAN:

The Copper & Brass Research on pages 19, 20 and 21 of your October sixth issue alone was worth \$2.00, and there are 51 more numbers due me which will be all velvet.

I have read AMERICAN ARTISAN all during my "mechanical" life and your present management is certainly living up to the "rep" that my good friend, Daniel Stern, built up.

Very cordially,

WILLIAM R. MCNEAL,
Secretary Florida Sheet Metal
Contractors' Association.

Jacksonville, Florida, November 6, 1923.

**Receives Double Value in
AMERICAN ARTISAN.**

TO AMERICAN ARTISAN:

Find enclosed \$2.00 for another year. I have received more than double value through the pages of your paper.

Yours cordially,

W. E. BRIGGS.

Auburn, Illinois, Nov. 13, 1923.

**His Shop Was Arranged
Through AMERICAN ARTISAN.**

TO AMERICAN ARTISAN:

Please accept our thanks for giving my request for shop arrangement the publicity which you did so well. We have received many suggestions as to the proper arrangement and assure you that your efforts in our behalf are very much appreciated.

Yours very truly,

L. F. WOLF HARDWARE Co.,

By C. F. Barck,
Mt. Clemens, Mich., Nov. 14, 1923.

Notes and Queries

"Art Panama" Stove.

From Stove Dealers Supply Company, Milwaukee, Wisconsin.

Who makes the Art Panama stove?

Ans.—This stove is not being manufactured any more, but repairs for it can be secured from the Northwestern Stove Repair Company, 20 West Lake Street, Chicago, Illinois.

"Keystone" Base Burner.

From Stove Dealers Supply Company, Milwaukee, Wisconsin.

Can you tell us who makes the "Keystone" base burner No. 10?

Ans.—The Floyd-Wells Company, Royersford, Pennsylvania.

Small Hinges.

From R. Hirsch, 1619 North Claremont Avenue, Chicago, Illinois.

Will you please let me know who makes small hinges, like those used on ice boxes.

Ans.—Stanley Works, 73 East Lake Street, Chicago, Illinois.

"Gopher" Furnace.

From Great Western Stove and Repair Company, 312 Hennepin Avenue, Minneapolis, Minnesota.

Kindly inform us who manufactures the "Gopher" Furnace No. 2544.

Ans.—Shakopee Stove Company, Shakopee, Minnesota.

Address of Western Stove Works.

From Stove Dealers Supply Company, Milwaukee, Wisconsin.

Will you please tell us where the Western Stove Company is located.

Ans.—This concern was located in Peoria, Illinois, about twenty years ago, but are now out of business. They left no successors, but repairs for their stoves can be had from the Northwestern Stove Repair Company, 20 West Lake Street, Chicago, Illinois.

Repairs for "Metropolis" Furnace.

From Ford City Roofing Company, Ford City, Pennsylvania.

Where can we get a complete grate with basket and shaker for a No. 22 Metropolis wrought iron furnace?

Ans.—The Metropolis Furnace Company, who made this furnace, are out of business, and we do not know of any one who can furnish repairs for it.

Spillman Creates Attractive Paint and Brush Window Display Which Brings in Extra Business.

Uses Orange Color for Background and Cork Linoleum on Floor—Brushes Hung on Board with Copper Wire.

THERE is no denying the fact that a paint display is difficult to arrange. It should be the aim of the designer to bring out the point of the beauty to be gained by a well decorated house or other buildings.

First of all, be sure that the front of your store is well painted, thereby setting a good example. Many people imitate parrot-like the action

The accompanying window display was arranged by W. E. Spillman for B. M. Dennis & Son, 611 North Water Street, Decatur, Illinois.

Perhaps Mr. Spillman could have arranged the brushes shown in an attractive manner upon the floor, but instead of that he has made an attractive upright upon which the

are sure to manifest themselves.

In making a paint display it would be well to place a high-grade finish on a portion of the floor, leaving the remainder unfinished, so as to exaggerate the contrast as much as possible. Stress the results to be obtained by using the paint and do not neglect to suggest various uses for the product.



Paint and Brush Display Made by W. E. Spillman for B. M. Dennis & Son, 611 North Water Street, Decatur, Illinois.

of others. Be sure that there are plenty of bright colors in the window, because the eye is attracted by bright and harmonious colors. Do not forget to wash the window each morning, so that the dust which accumulated during the previous day will be removed.

In arranging the cans of paint and brushes, do not clutter up the window with too many. A few cans arranged in some attractive design will work.

brushes are arranged so that they can be easily seen.

The cans of paint are placed in pyramid shape on either side of the upright carrying the brushes. Note that color cards are interspersed among the paint.

Tidiness plays an important part in window display making. The eye craves beauty, but filth and uncleanliness are repugnant, and whenever there is the slightest tendency in this direction the harmful results

Make Original Thanksgiving Display for AMERICAN ARTISAN Window Display Competition.

The origin of Thanksgiving dates back to 1621, when the first harvest had been gathered by the New England Pilgrims. During Revolutionary times it was introduced into some of the other colonies outside of New England, but it was not until 1863 that it was proclaimed as a national holiday by President Lin-

coln. It is a holiday only by virtue of public acceptance of the proclamation of the President and the governors of the several states, who urge the setting aside of the fourth Thursday of November for public worship. It is not, however, a legal holiday ordained by act of Congress.

The advent of Thanksgiving and Christmas each year opens an excellent opportunity for store clerks to produce original window displays.

Live turkeys in the window would surely compel attention, and they would also enable a clever show card artist to put some interesting signs up about how the turkey could be obtained by customers.

A window fitted up to resemble a kitchen could be arranged without much difficulty. A woman in the window showing the use of fireless cookers, small stoves, electric grills, toasters, percolators, and various kitchen utensils would be a big attraction in any community.

Get busy and put over something original, and remember our window display competition closes January 12, 1924. It's worth real money to you.

Rules Governing Contest

The photograph, together with descriptions of how the window displays were arranged and the materials used may be sent by mail or express, charges prepaid, and must reach this office not later than January 12, 1924.

Each photograph and description must be signed by a fictitious name or device and the same name or device must be placed within a sealed envelope containing the real name and address of the contestant. This sealed envelope is to be enclosed with the photograph. Contestants may enter as many window displays as they desire.

AMERICAN ARTISAN AND HARDWARE RECORD reserves the right to publish all photographs and descriptions submitted in this competition.

A competition committee of three will be appointed, one of whom will be an expert window dresser and one an experienced hardware man. This committee will pass upon the

merits of all photographs and descriptions received, without knowing the names or addresses of the senders, and will decide the winners of the contest.

Kirk-Latty, Cleveland, Sells Children's Vehicle Department to Topliff-Ely, Pennsylvania.

The Kirk-Latty Manufacturing Company, Cleveland, Ohio, announces the sale of its Children's Vehicle Department to the Topliff-Ely Company, Washington, Pennsylvania.

The disposition of this department will enable the Kirk-Latty Manufacturing Company to materially increase its facilities for manufacturing and distributing its line of bolts, nuts, rivets, etc.

The purchaser of this popular line of children's vehicles is no stranger to the trade, and the addition of this line to its line of doll cabs, go-carts, etc., will place them in position to supply a more complete line of children's vehicles.

The Kirk-Latty Manufacturing Company, through these columns, wishes to express its appreciation to its many friends and customers for their loyal support over a period of many years.

Christian Home Orphanage Damaged By Floods.

Damage to the extent of about \$20,000 was inflicted on the Christian Home Orphanage at Council Bluffs, Iowa, by floods from excessive rains and cloudbursts on the nights of September 28 and 29. Every building at this great institution was damaged, the heating, lighting and power plants rendered useless for several days, and the store rooms in the basements of the buildings were flooded and thousands of dollars worth of supplies ruined.

This is the worst catastrophe that has ever befallen this work, and comes as a serious blow when the institution was already struggling to free itself of debt.

This institution is non-sectarian, receives orphan and destitute children from all parts of the country

and is supported entirely by the voluntary contributions of charitable people. It is appealing to the public for a Thanksgiving offering to help overcome the losses by the recent floods and to meet running expenses in the daily care of two hundred and fifty inmates. The institution has had calls from those in distress in foreign climes and has responded to them.

Let all send something at Thanksgiving and help to put the home of those little children back on its feet. Address The Christian Home Orphanage, Council Bluffs, Iowa.

Layton Proves to Himself That Window Displays Will Sell Even Very Common Goods.

A. V. Layton is a hardware dealer at Albright, Nebraska. He has found a way to merchandise hammer handles. It wasn't much of an item, but it demonstrated what can be done by diligent merchandising plans.

He placed a toy motor truck in his show window one Saturday and filled the body of the little truck with hammer handles. Alongside he stuck up a little sign:

.....		
:	Take Home	:
:	a Hammer Handle	:
:	for 25 cents	:
.....		

People looked in the window at the little red truck and read the sign. Before night he had sold two dozen hammer handles for a quarter apiece.

The following Saturday morning he again filled the little truck with hammer handles, and displayed the same sign. Again he sold two dozen handles. He kept that up every Saturday, beginning January first, until only a few weeks ago.

Then just for an experiment, he stopped putting the hammer handles in the window, and the Saturdays have since gone by without the sale of hammer handles.

It only demonstrates what one can do with small items when one displays them in an attractive way.

Hardware Commodity Price Index a Necessary and Accurate Guide to Business.

Lewis H. Bronson Outlines Commodity Price Index Before Hardware Group at Atlantic City Convention October 18.

THE necessity of a weighted commodity price index is obvious. Its usefulness has been proved not alone in the hardware industry, but in almost every other industry as well. The Harvard Research Bureau, Harvard University, bases its conclusions almost entirely upon the index, and this Bureau is indeed well known.

The following erudite discourse on the Weighted Hardware Commodity Price Index was given by Lewis H. Bronson, Bronson & Townsend Company, New Haven, Connecticut, before the Hardware Group, American Hardware Manufacturers' Association in convention at Atlantic City, October 17 to 19, 1923:

Necessity of a Weighted Hardware Commodity Price Index:

As my time is limited, I will waste none of it on an introduction, nor in telling why we developed several years ago a weighted hardware commodity price index. The necessity was an obvious one. We, at the end of the war, in looking around for such statistics, could not find them, and as we knew we were approaching a period of unusual price swings, we wanted definite figures upon which to base our thinking and planning.

We had already made an analysis of our business and found that some fifty odd lines made up nearly 70 per cent of our sales. We, therefore, felt that if we could develop a weighted index of these fifty lines, it would pretty accurately show the swings of prices as far as our own stock of hardware was concerned. We gave to each of these fifty lines its own particular value in our total sales.

As we were in a hurry to get the plan under way, we took arbitrarily the low point in early 1919 as 100 and began to work both ways. We worked it back to July, 1914, which was the low point with us, and found the figure was 61. We carried it forward month by month to the high point on November 1, 1920, where it stood at 116. It was at the time of this high point that we began to make real use of it.

Of course, we realized that the main trend of prices through a 50-year period would probably be downward, but we were more interested in the shorter up and down swings. In order to interpret these intelligently, it was necessary to divide this 50-year period, say of eight or ten years, and then establish some average or normal line for these shorter periods. We immediately made up our minds that we might as well leave out of our reckonings the 1914 prices, as they were not and could not be the nor-

mal average for the period from 1920 to 1930.

If we were to chart a steady course for our business instead of an irregular one, it was necessary for us to decide what would be the probable average for the 10-year period ahead of us. Otherwise we would be swayed too much by the daily ups and down. Two members of our little organization sat down one day and, with past history before us and all the facts available that we could get together, tried to reason the thing out. One picked as the probable average line a point 50 per cent above the 1913 average; the other picked out 33 1-3 per cent. Our final conclusion was this: that perhaps the line was somewhere between, but for the purpose of our own business we decided that when prices got back to a point 50 per cent above 1913, we could begin to do business again in a normal way, and that if they should go down to a point only 33 1-3 per cent above the 1913 price, it would surely be time to buy rather generously.

Of course, we recognized that prices when going up always go to a point considerably above the average and when going down, go to a point below the average. If, however, we had an average line of which we felt reasonably confident, the swing below could usually be handled without serious loss, and the swing above to our advantage.

How Index Was Developed from Month to Month.

Perhaps you would be interested in following our weighted index as it developed from month to month. I said the high point on November 1, 1920, was at 116. On January 1, 1921, it stood at 110; on April 1, 108; and on July 1, 101. (I am leaving out the fractions in each case.) On October 1, 96, and on January 1, 1922, 91. At this point you will see that the Index was almost exactly 50 per cent above the 1913 price and it was at this point that we began to say to ourselves that before many months there was liable to be a change which would warrant our beginning to buy again more normally.

Of course, the first two months of that year, as always, showed a good many changes and we were not surprised to find a further decline to 86 by March 1, but from that point on the decline was slow. During the next two months the total decline was less than one point, having not quite reached 85 on May 1. It was at that point we began to buy a little more freely. The decline between May 1 and July 1 was only half a point, and here we began to buy quite generously.

When on August 1 we got the first advance in almost two years we felt pretty sure of ourselves, and I remember distinctly that in the few weeks preceding the Atlantic City convention we took pains to go through our entire stock and by contracts and orders, put it back into good shape. When I got down to Atlantic City that year there was beginning to develop a feeling of confidence, but I think that in our case we had to

our own advantage anticipated, through the information given by our commodity index, the turnabout in business by several months.

Commodity Index Showed Business on a Sound Basis.

The figures have been increasingly interesting as time has gone on. Our original plan had contemplated a decline on the reaction of perhaps 10 per cent under the normal. Based on the low point of 84 plus, we picked out as the normal for the next few years a figure around 90. This means that as far as our own calculations were concerned, we expected our commodity index to swing between the figures of say, 85 and 95. Normally we felt that when prices were between these two figures it was reasonable to assume that business was on a safe basis. If prices went below 85, we should consider they indicated a period of depression. If they went above 95, we would feel that we were getting into a period of inflation. You can see then how much interested we were in the figures of our index during the first six months of the present year.

There had been a recovery from the low point of July 1, 1922, which was around 84, to a figure of 88 on January 1, 1923. You will remember that back in March and April of this year most everyone was talking inflation. Our index, however, showed a figure of only 89 on March 1, but there was a jump to 92 on April 1, and to 94 on May 1. All along we had been trying to keep our customers fully informed of these lines by means of booklets and letters containing the report of these changes in figures. In all of these we have maintained consistently that as far as the hardware industry was concerned (and now I am referring to the distribution end) we need not be afraid of the evil effect of inflation until our index got above 95 and then continued to advance beyond that point. We ourselves did not believe that we were approaching a period of inflation in business, but, of course, when we got almost up to our upper limit on May 1 we were a little anxious. There really was a sense of relief when on June 1 it dropped nearly one point. During the summer months there have been only minor fluctuations—a little evening up process, and the figure on October 1 is 93.6.

I have simply tried to outline the plan we have used in making up our index and how we have used it. I have had to do it rather hastily and perhaps certain points are not clear. If the chairman wishes to take any time for discussion, I shall be glad to answer any questions as far as I can.

Have Your Advertisement Reflect Your Personality.

A strong personality begets confidence. With confidence prosperity is assured. By his personality the individual is recognized, because no two individuals have exactly the same personalities.

Personality is reflected in speech, mannerisms—behavior—and writings, but here we are concerned chiefly with the latter.

A man's signature is recognized in the bank and he immediately becomes an individual.

If it is true that personalities are reflected in writings, why not make your advertisements the vehicle of your own personality? Why not give the readers of your advertisements the benefits of your personality by making the advertisement reflect your own or the personality of your store? They will soon come to recognize it, the same as you come to recognize the individual in a crowd; at first the people all look alike to you, but after repeated meetings you begin to notice the little peculiarities and differences which each person has; then they become individuals to you.

The same thing is true of the advertisement, and as the primary purpose of most advertising is to get the name of the Company closely associated with the products which the house sells, why not put your personality into your advertisement in such a way that when the customer thinks of stoves he simultaneously thinks of Jones and the line of stoves he carries?

Death Takes Son of T. James Fernley.

It is with regret that we announce the death of Thomas A. Fernley, National Secretary of the Wholesale Jewelers' Association.

Mr. Fernley, who was forty years of age, had for many years been associated with his father, T. James Fernley, and brother, George Fernley, in the activities of many national trade organizations. He was ill about a month.

We are sure that the many hardware men who have learned to esteem and love "Tom" Fernley will sympathize with him in his loss of a beloved son.

Coming Conventions

Western Retail Implement and Hardware Association, Missouri Theater Building, Kansas City, January 15, 16, 17, 1924. H. J. Hodge, Secretary-Treasurer, Abilene, Kansas.

The West Virginia Retail Hardware Association Convention and Exhibit,

Huntington, West Virginia, January 15 to 18, 1924. James B. Carson, Secretary-Treasurer, 1001 Schwind Building, Dayton, Ohio.

Mountain States Hardware and Implement Association Convention, City Auditorium, Denver, Colorado, January 22-24, 1924. W. W. McAlister, Secretary-Treasurer, Boulder, Colorado.

Kentucky Hardware and Implement Association, Louisville, January 22-25, 1924. J. M. Stone, Secretary-Treasurer, 202 Republic Building, Louisville.

Indiana Retail Hardware Association, Inc., Convention and Exhibition, Cadle Tabernacle, January 29, 30, 31, February 1, 1924. G. F. Sheely, Secretary, Argos.

Illinois Retail Hardware Association, Hotel Sherman, Chicago, Illinois, February, 1924. Leon D. Nish, Secretary-Treasurer, Elgin, Illinois.

Nebraska Retail Hardware Association, Lincoln, Nebraska, February 5 to 8, 1924. George H. Dietz, Lincoln Nebraska, Secretary-Treasurer.

Wisconsin Retail Hardware Association Convention and Exhibition, Milwaukee Auditorium, February 6, 7, 8, 1924. George W. Kornely, Manager of Exhibits, 1476 Green Bay Avenue, Milwaukee. P. J. Jacobs, Secretary-Treasurer, Stevens Point.

Michigan Retail Hardware Convention and Exhibition, Grand Rapids, February 12, 13, 14, 1924. Karl S. Judson, Exhibit Manager, 248 Morris Avenue, Grand Rapids. A. J. Scott, Secretary, Marine City, Michigan.

Iowa Retail Hardware Association, Des Moines, Iowa, February 12, 13, 14 and 15, 1924. A. R. Sale, Secretary-Treasurer, Mason City, Iowa.

The Pennsylvania and Atlantic Seaboard Hardware Association, Incorporated, Convention and Exhibition at the Philadelphia Commercial Museum, Philadelphia, Pennsylvania, February 12, 13, 14 and 15, 1924. Sharon E. Jones, Secretary-Treasurer, Wesley Building, Philadelphia.

Ohio Hardware Association, Convention and Exhibition, Cincinnati, Ohio, February 19, 20, 21 and 22, 1924. James B. Carson, Secretary, 1001 Schwind Building, Dayton, Ohio.

New York Retail Hardware Association Convention and Exhibition, February 19, 20, 21, 22, 1924. Headquarters, McAlpin Hotel, and exhibition at Seventy-first Regiment Armory. John B. Foley, Secretary, 412-413 City Bank Building, Syracuse, New York.

New England Hardware Dealers' Association Convention and Exhibition, Mechanics' Building, Boston, February 20, 21, 22, 1924. George A. Field, Secretary, 10 High Street, Boston, Massachusetts.

North Dakota Retail Hardware Association Convention and Exhibition, Municipal Auditorium, Fargo, February 20, 21, 22, 1924. C. N. Barnes, Secretary, Grand Forks.

Michigan Sheet Metal and Roofing Contractors' Association, February 25 to 28, 1924, Hotel Kerns, Lansing. T. E. Eiderle, Secretary, 1121 Franklin Street, S. E., Grand Rapids, Michigan.

Missouri Retail Hardware Association Convention and Exhibition, Marquette Hotel, St. Louis, February 26, 27 and 28, 1924. F. X. Becherer, Secretary, 5106 North Broadway, St. Louis.

Minnesota Retail Hardware Association Convention and Exposition, St. Paul Auditorium, February 26, 27, 28, 29, 1924.

C. H. Casey, Secretary, Jordan, Minnesota.

South Dakota Retail Hardware Association and Exposition, Coliseum Building, Sioux Falls, March 4, 5, 6, 7, 1924. C. H. Casey, Secretary, Jordan, Minnesota.

California Retail Hardware Implement Association Convention and Exhibition, Civic Auditorium, San Francisco, March 18, 19, 20, 21, 22, 1924. LeRoy Smith, Treasurer, 112 Market Street, San Francisco.

Southeastern Retail Hardware and Implement Association, composed of Alabama, Florida, Georgia and Tennessee, Convention and Exhibition, Atlanta, Georgia, May 27, 28, 29, 1924. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta.

Hardware Association of the Carolinas Convention, Wrightsville Beach, North Carolina, June 17, 18, 19, 1924. T. W. Dixon, Secretary-Treasurer, 717-718 Commercial Bank Building, Charlotte, North Carolina.

Retail Hardware Doings

Arkansas.

The LaGrone and Cheever hardware store have opened for business in the LaGrone Building, Foreman.

California.

The hardware stock of the Scott Company, Selma, has been sold to Lieberman-Rosencrantz Company of San Francisco.

Wallace Bently, formerly of Sacramento, will open a hardware store in the Odd Fellows Hall building in Live Oak, soon.

Homer Clark, who for the past eight years has been manager of the Tracy branch of the Stockton Hardware and Implement Company, has opened a hardware store at Los Gatos.

George E. Sweeney of Petaluma, intends to open a hardware store at that place very soon.

Illinois.

John Millen, who has for the past sixteen years conducted a hardware store at 605 Main Street, Wilmette, has opened a new up-to-date hardware store at 1219-1221 Wilmette Avenue, Wilmette.

Iowa.

The F. D. Snively Hardware Company stock and building at Iowa City has been sold to Ralph Snively.

Michigan.

Nelson and Glau is the new firm that has opened a hardware store at 74 East Main Street, Battle Creek.

Dick Van Tatenhove bought out the interest of his partner, Arend Siersma, at Holland, and is now the sole owner.

Missouri.

The Hunker Hardware Company has opened for business at Salisbury.

S. C. Forsker and his son, Will, have sold their hardware stock at Richards to A. W. Lowry.

Tennessee.

Wright-Waller and Company is the name of the new hardware firm which has opened for business in Knoxville at 114-116 West Jackson Avenue.

Texas.

Mrs. S. C. Imboden has sold her hardware stock at Jacksonville to Hurdle and Stribling of Winnsboro.

Thanksgiving Day Offers Good Opportunity to Push Kitchen Ranges and Cooking Utensils.

Show Customer Enjoying Well-Cooked Dinner and Emphasize Labor and Time Saving Features of Advertised Article.

IN ADVERTISING stoves there are so many opportunities to make the subject interesting and attractive that it seems surprising that more of them are not used. There are few healthy people indeed who can not be interested in the subject by a reference to a delicious dish of food in the form of cakes, pies, chicken dinners, etc. The approach of Thanksgiving is the natural help-mate of the stove salesman.

In advertising stoves equipped with the Lorain Oven Heat Regulator there are hundreds of "newsy" ways of catching the eye.

The fall, the football season with friends coming for dinner. Does the wife have to give up seeing the game, in order to get dinner because she knows that her guests will be as hungry as bears when they return? Not if her kitchen is equipped with a Lorain Oven Heat Regulator. Does she have to remain at home all afternoon when Mrs. Jones is entertaining at tea? How embarrassing it is to have the dinner burned when company is coming!

A person writing advertising copy for the stove department can make up instances of this sort without number which have real news value to the housewife, who cannot fail to appreciate their significance.

In the selling it is essential to picture for the customer the things which he or she can enjoy by making the purchase.

In the accompanying ad of Honeyman Hardware Company, which was 4 x 15½ inches, an attempt in this direction has been made. This is a fairly attractive ad, but it is our opinion that it would have been much better had it been made slightly shorter and wider. This would have permitted greater use of white space, which would have made it easier to read.

Rather profuse use of stock phrases have been made in the ad

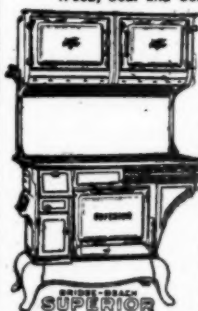
which should be discouraged. If you say that the women will be highly pleased with the article, tell



Bridge, Beach & Company Heating Stoves

The old reliable line of heating stoves made by Bridge, Beach & Co. can be truly termed "Lifetime Stoves," because they wear indefinitely and with heating qualities unsurpassed.

We are showing many patterns in Wood, Coal and Combination models.



Bridge, Beach & Co. Superior Combination Ranges

In these days of rising expenses it behooves the housewife to consider well the merits of this splendid Range from an economical standpoint.

It will do the work of two stoves, economizes space in the kitchen, with the added advantage of a highly satisfactory gas range in summer and the warmth of a heating stove in winter when burning wood, coal or briquets.

Its baking qualities are beyond criticism and the delight of the housewife.

The Superior Combination Range is beautiful in design, sanitary, easy to operate and, besides being efficient, will ornament any kitchen. Call and Look Over Our Large Display of These Splendid Ranges.

Fox Sunbeam Furnaces

—Pipe and Pipeless Patterns—

The heat of a June day in the dead of winter is assured users of the Fox Sunbeam.

We have installed scores of these fine furnaces in this city because its makers are recognized authorities on heat distribution.

You Owe it to Yourself to Investigate This Money Saving Furnace. Let Us Tell You All About It.

Clark-Jewel Gas Ranges

WITH LORAIN ATTACHMENT

"It Measures the Heat."



The Clark-Jewel stands today a leader in gas range construction.

Beautifully designed, perfect in cooking qualities and with the Lorain attachment a semi-fireless cook stove.

The Clark-Jewel is the sanitary stove supreme and its service will more than delight the discriminating housewife.

For the Fireplace We Offer

Andirons, Fire Screens, Fire Sets, Spark Guards, Basket Grates, Coal Hods, etc.

Electric, Gas and Oil Heaters

South Bend Malleable Ranges
For Restaurant and Camp Use

Honeyman Hardware Co.

PARK AT GLISAN ST.
One Block West of New Postoffice, near Broadway Bridge
Free Parking Grounds for Patrons

Profuse Use of Stock Phrases Should Be Avoided in Advertisements

her the reason why she will be pleased.

The illustrations of the ad are well chosen and fairly well arranged.

Leonard & Hamilton Foundry, Taunton, to Manufacture Stoves.

The Leonard & Hamilton Foundry Company, Taunton, Massachusetts, which recently was organized, will manufacture stoves, ranges and some machine castings. Mr. Leonard was formerly with the Leonard & Baker Stove Company. Mr. Hamilton is a practical foundryman and has charge of the manufacturing end of the new business.

Federal Trade Commission Says Stove Manufacturers Are Bad Boys and Should Be Spanked.

A report by the Federal Trade Commission has just been made for the United States Senate covering the stove manufacturing industry.

It is stated in the report that the stove manufacturing industry is organized into various local associations and a national association which perform various useful and lawful services for the trade, but that in certain of their activities they "operate in restraint of trade."

The outstanding features ascertained are a great increase in factory prices over pre-war years, reaching a peak in 1920, with a comparatively slight decline since then; an average profit by the stove manufacturing industry of about 17 per cent in 1920, but practically no profit in 1921; and association activities apparently resulting in understandings restricting competition and tending to increase prices more rapidly on a rising market and to retard their decline on a falling market.

For the retail trade, because retailers of stoves are generally engaged in handling numerous kinds of goods besides stoves, the present report covers only prices.

Of the consumer's dollar spent for stoves in 1920, 23.8 cents went for raw materials, 35.8 cents for other manufacturing costs, 7.5 cents

for manufacturers' profit, 2.9 cents for freight, and 30 cents for retailers' expenses and profit; in 1921, 23.4 cents went for raw materials, 43.8 cents for other manufacturing costs, 1 cent for manufacturers' profit, 3.4 cents for freight, and 28.4 cents for retailers' expenses and profit.

The data upon which this report is based have been gathered from the records of leading concerns in the industry and the Commission acknowledges the spirit in which the producers have coöperated in the following terms:

"The manufacturers engaged in the stove industry and their association officers have generally coöperated in a very frank and commendable manner in furnishing the information requested by the Commission."

EDITOR'S NOTE: In view of the fact that even in 1920, when the greatest profit was made, 59.6 cents of the consumer's dollar went for raw material and manufacturer's cost and only 7.5 cents for his profit, and that in 1921, 67.2 cents were spent in costs and only 1 cent was received as profit, it would seem that the consumer did not suffer any evil consequences from the activities of the stove manufacturers. It is also to be remembered that no cost man worthy of the name is ignorant of the costs of his competitor, and cost discussions in association meetings are counted as among the activities which are not only allowed by law but actually encouraged by Department of Commerce officials.

Make 'Em Hungry! Demonstrate Your Stoves!

It is wise to have baking and cooking demonstrations with your range; frequently, to let the customers see the delicious brown and smell the appetizing aroma of a freshly-baked loaf of bread. Let the customers see the golden, flaky, fluffiness of the biscuits and the savory, juicy, "just right" turn of a roast. Make 'em hungry. Demonstrate!

The sight of food always arouses the appetite and the appetite arouses desire. Desire for the result is easily transformed into desire for the thing which produces the result, and the chain is thus completed. The sight of perfectly cooked food is far more effective than all the talk about baking ever could be. Demonstrate!

Bridge Street Furniture and Stove Company, Grand Rapids, Incorporates—Capital Stock \$10,000.

The Bridge Street Furniture and Stove Company, 280 Bridge Street, Grand Rapids, Michigan, has been incorporated with an authorized capital stock of \$10,000, \$6,000 of which has been subscribed and paid in, \$700 in cash, and \$5,300 in property.

Edward E. Barto, Former Salesman of Abraham Cox & Son, Philadelphia, Dies at Ocean Grove.

Edward E. Barto, for many years a well known Elk and vocalist of Camden, New Jersey, died November 10 in a hospital at Ocean Grove from a complication of maladies. He was 54 years old and is survived by his widow and son, Leighton Barto, who lives on Chambers avenue, Camden, according to a newspaper clipping sent to AMERICAN ARTISAN by J. B. Borden, Vice-President, Borden Stove Company, Philadelphia.

Mr. Barto was attacked with carbuncles some time ago, resulting in the development of other maladies that ended in his death.

Up until about a decade ago Mr. Barto made his home in Camden. Possessed of a fine bass voice he sang in the choir at the Centenary M. E. Church and was also a member of the famous old quartet of Camden Lodge of Elks. For many years he was a traveling man for Abraham Cox & Son, range and stove dealers, of Philadelphia. He was a familiar figure about the Elks Home until he moved to Ocean Grove seven or eight years ago.

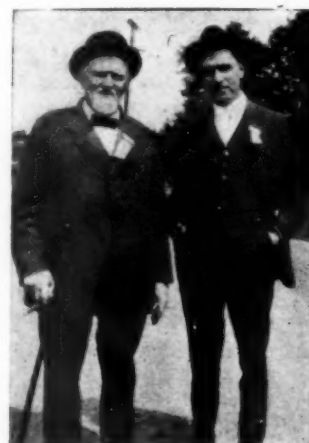
His funeral was held Thursday morning, November 15, at Camden.

Interment was made at Harleigh Cemetery.

B. J. McCarthy Passes on at Ripe Old Age.

Three years ago one of the most brilliant speeches I have ever heard was delivered by B. J. McCarthy, of the Phillips & Buttorf Manufacturing Company, Nashville, Tennessee, at the meeting in Cleveland, Ohio, of the Southern Stove Manufacturers' Association.

Mr. McCarthy was at that time close to eighty years of age, but he was hale and hearty and full of life and energy. His mind was quick



**The Late B. J. McCarthy
and His Son, B. E.
McCarthy.**

and alert and he was active in the management of the large and prosperous enterprise he had built up.

Today he is gone, his spirit having passed on last Thursday.

To his son, B. E., his other relatives and the thousands of friends he had, the passing will mean a deep personal loss, but this grand old man will continue to live in their memories as a man whom they could all look up to with pride and to whom they could come in their troubles and always with the certainty of a kindly heart and helpful attitude.

The picture shown in the illustration was taken during the meeting of the Southern Stove Manufacturers' Association, Cleveland, Ohio, August, 1920.

Labor conquers all things, and perspiration is a fair substitute for genius.

Make Your Advertisements Present the Various Aspects of Your Store—Service, Facilities, Ideals.

You Can't Actually Shake Hands with All Your Customers, but You Can in Spirit Through Your Advertisements.

THE one salient feature of the "special offer" advertisement is that it produces decisive and immediate action. This type of appeal always carries a large discount from the regular selling price or gives the equivalent of a discount in the form of additional free merchandise. There is always a time limit to the offer which is designed to bring about immediate decision. The offer

may and often does include several items, but frequently it is confined to some special article which is going out of season and which the dealer finds that it would be more profitable to move at a discount than carry over until the next season.

It frequently happens that a dealer, in wishing to push a certain article, will make a special offer, taking advantage of the approach of

some special season to bring the product before the prospective customer.

The F. Geele Hardware Company has made excellent use of the latter type of special offer, as is shown in the accompanying reprint of their advertisement, appearing in the Sheboygan, Wisconsin, *Telegram*.

This special offer carries a limited easy payment plan, restricting the payments to ten months' duration. The ad is excellently written and arranged. The free offer is especially attractive and designed to create instantaneous action. The illustration, type sizes and arrangement are good, indeed. A good use of white space is also made. Needless to say that this ad produced immediate and decisive results. The offer of an allowance on the sweeper is a strategem of high quality, and the fact that it has made it possible for the purchaser to dispose of the obsolete device profitably is a drawing card of no mean pulling power.

* * *

Good Advertising to Farmers Always Brings Profitable Returns.

Every advertising man should be interested in the local trade center, the distributing point for advertised products. Prosperity is synonymous with industrial expansion. There is plenty of room for expansion in the country. In many instances cities are over-advertised. Not so with the farm communities. As each little town or village attracts and fosters industry within its own district, the community thrives and its people receive every benefit that flows from public cooperation with business men. A better understanding between business men in the city and business men in the country is to be desired. Advertising men owe something to the communities from whence their results come.

FREE R E A D

**14 PIECE
SET OF PYREX
OVEN WARE**

OR
Allowance for
Your Old Sweeper

—
Special
10 months terms only
during sale
\$6.15 per month



HOW do you clean your rugs?

ARE you still using obsolete devices?

MANY housewives know they are not efficient.

IN time you will discard carpet sweeper and broom.

LET us demonstrate the real labor saver:

TRY cleaning the Hamilton Beach Way.

OCTOBER will soon be here—Fall house cleaning.

NOW is the time to make that an easy job.

BE sure and phone 18 today—special sale.

EASY payments allow you to own one.

ALLOWANCE old sweeper or 14 piece set of pyrex.

CALL 18 and have free demonstration.

HAMILTON • BEACH • DELUXE

VACUUM SWEEPER

PHONE 18 TODAY — FREE TRIAL

F. Geele Hardware Co.

Depression Sentiment Disappears; Federal Taxes May Be Reduced; Agricultural Conditions Improving.

Building Construction Shows Greater Activity—Non-Ferrous Metal Prices Rise Rapidly in Big Buying Movement.

THE current month has brought to the surface an impressive series of constructive developments. These are supporting the distinctly more encouraged financial and business sentiment. The railroads have declared their intention to continue large scale purchases of equipment. Building construction is showing a surprising spurt for the season. Automobile production gained in October and important expansion plans are under way for greater outputs in 1924. Freight traffic continues at a high level, reflecting large distribution and consumption of goods. Agricultural conditions are growing steadily better. The lagging copper markets have displayed new life and demand has quickened.

Copper.

Advancing prices and greatly increased buying activity have featured the copper market the past week. In the first 13 days of November Electrolytic copper moved up one cent a pound, the best rally this metal has had since the last bull market ended in April.

Accompanying and accelerating the rise in copper prices have been three advances in copper and brass rolled and drawn products, putting base prices up $\frac{1}{2}$ to $\frac{7}{8}$ cent a pound.

Scrap copper and brass also have risen with demand active.

Casting and lake copper quotations moved along with electrolytic. Electrolytic is 13.50 cents delivered, lake 13.75 cents delivered, casting 13.12 $\frac{1}{2}$ cents refinery.

Tin

The New York market opened November 14 with offerings of Straits tin at 44.25 cents to 44.37 $\frac{1}{2}$ cents and at the first call on the Metal Exchange 25 tons for January shipment from the Straits were sold at 44.25 cents. Later, when ad-

vices were received of the higher prices paid on the London curb, sellers raised their prices to 44.50 cents and considerable sales for future deliveries were accomplished at this level. Prompt delivery Straits has been done at from 44.25 cents up to 44.50 cents.

Lead.

Lead business has been good, both in the East and Middle West and prices are going up. Sales of November and December shipments have been made in volume at 6.50 cents, East St. Louis, and today at 6.60 cents. Outside sellers have gotten premiums of $\frac{1}{8}$ to $\frac{1}{4}$ cent for eastern delivery, over the Smelting company's quotations, and the latter went up to \$6.85 cents, New York.

Zinc.

Operators in zinc show a disposition to pay 6.40 cents East St. Louis basis for prime western for any position, and this has had a steadying effect.

In some directions there is in fact an optimistic sentiment despite the increase in stocks and the present large scale of production. This must be based on expectations of further export at present quite impracticable or improvement in domestic demand, still to develop, or both.

Quotations of zinc are from 6.40 to 6.45 cents for Prompt, November and December; those for January are 6.42 $\frac{1}{2}$ to 6.47 $\frac{1}{2}$ cents; February, 6.45 to 6.50 cents; March, 6.47 $\frac{1}{2}$ to 6.52 $\frac{1}{2}$ cents, all East St. Louis.

Solder.

Chicago warehouse prices on solder are as follows: Warranted, 50-50, 28.75; Commercial, 45-55, 28.00, and Plumbers', \$27.00, all per 100 pounds.

Bolts and Nuts.

Changes in the nut, bolt and rivet market are barely noticeable from week to week. Practically no improvement is manifest in demand but no real decline in business is noticed. A few single carloads are noted from time to time among a fairly large number of less-than-carload orders. Nuts and bolts usually are taken at 5 to 10 per cent below the quoted discounts which have not been officially changed. The same buying rate is enjoyed in rivets and the same price weakness is apparent. While the regular market is unchanged at 3.00 cents, around 2.75 cents is quoted on attractive lots.

Tin Plate.

Barring unforeseen contingencies and after having allowed some places for the spot buying of charcoal tin plate, black plate, terne plate, etc., the American Sheet & Tin Plate Company already is assured of sufficient tin plate business by contracts, reservations and specifications already in hand to keep it operating at 90 per cent or higher until June 30 of next year. Its price of \$5.50 was announced October 31 for the first quarter only, but its large customers have so flooded it with business than the carryover from the first to the second quarter will be practically the equivalent of that period's output.

Last week the leading interest achieved the highest operating rate of any week so far in 1923, 93.2 per cent. Some of the independents are operating at 80 to 95 per cent of capacity, one nearby independent being able to operate on a practically full basis, all possessing favorable order books.

Can makers are making every effort to insure themselves of a full

JOHN T. EPLETT
ROOFING
 HEATERS AND RANGES
 STEAM AND HOT WATER HEATING
 1931 WEST TIOGA STREET
 PHILADELPHIA

Copper & Brass Research Asso.
 25 Broadway, N.Y.

Gentlemen:

Sometime ago you sent me circulars and other printed matter pertaining to the use of copper. With this and what other advertising I have done brought me considerable business and I have used quite a lot of copper spouting and gutter that I probably would never have done but for this advertising, so it pays to advertise.

Could you loan me cuts for the circulars enclosed. I wish to put an ad in one or two local papers and wish to change the ad every two weeks.

This would greatly oblige,

Yours truly,

John T. Eplett

JTE.B.

CERTAINLY
IT PAYS TO
ADVERTISE!

The advertising material mentioned by Mr. Eplett is bringing in a lot of profitable business for roofers and sheet metal workers all over the country.

Are **you** using it?

Circulars, pamphlets, mailing pieces to send to your customers;

display material for your windows—all supplied by us **free**—will help you, too, to get profitable Copper roofing and sheet metal jobs.

Do as Mr. Eplett and so many others are doing. Ask for the material that is here waiting your request. Send in the coupon today.

COPPER & BRASS **RESEARCH ASSOCIATION**

25 Broadway - New York

COPPER & BRASS RESEARCH ASSOCIATION,
 25 Broadway, New York

Please send me, free, and imprinted without charge:

.....copies of "And the Greatest of these is Rust"
copies of "Rust-Proofing Home Sweet Home."
copies of "Copper, the Ideal Roof,"
 A window poster ("Copper Work a Specialty"),
 New window display material now being prepared.

A.A.

Dealer's Name

Street Number

City

(Sign exactly as you wish it in printed on scotch.)

supply of tin plate for the coming year.

Sheets.

Prominent sheet producers view the present situation as abnormal in that sheet consumption is larger than is usual at this time of the year.

Consumption is proceeding at a high rate and users' as well as jobbers' stocks are being depleted without comparable reordering taking place, which produces a bright outlook for the sheet against the future.

One maker received an order for 20,000 tons of black and galvanized sheets for Japan late last week, together with other specifications, brought that interest's order bookings to twice its shipments. The shipping rate is maintained at a high percentage of capacity. Since the orders for the Japanese sheets were in metric tons, the actual total tonnage was 22,500 net tons and while the net figures are not revealed, the selling prices are said to be larger than could have been obtained on material shipped to domestic consumers on the same bases, 3.85 cents for black and 5.00 cents for galvanized sheets. Some surprise has been occasioned by the fact that the order went to the Steel corporation since it is well known that independent sheet producers are in need of both black and galvanized tonnage and in the domestic market several continue to quote at least \$2 per ton under the prices announced by the American company, in order to book up even small and inconsequential lots, 3.79 cents to 3.75 cents on black and 4.85 cents to 4.90 cents on galvanized having been quoted on as little as 50 or 100 tons at a time.

Operations of the leading interest this past week were equivalent to 84 per cent of sheet mill capacity but that is above the general average which is estimated to be nearer 70 than 75 per cent. Some of the independents followed leading interest in reaffirming prices for the first quarter, 3.00 cents, 3.85 cents, 5.00 cents and 5.35 cents for blue annealed, black, galvanized, and full

finished automobile sheets, base Pittsburgh respectively.

Old Metals.

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$16.00 to \$16.50; old iron axles, \$24.00 to \$24.50;

steel springs, \$18.50 to \$19.00; No. 1 wrought iron, \$12.00 to \$12.50; No. 1 cast, \$16.75 to \$17.25, all per net tons. Prices for non-ferrous metals are quoted as follows, per pounds: Light copper, 9½ cents; light brass, 6 cents; lead 4¾ cents; zinc, 4 cents, and cast aluminum, 16 cents.

Pig Iron Inquiries Increase; Buying Movement For First Quarter Delivery About to Take Place.

Pittsburgh Iron Reached \$20—Birmingham \$18.50—Chicago Melters Feel Prices Low Enough to Cover Ahead.

IRON and steel production continues on the decline. Pig iron has shown recession for five consecutive months while the output of steel ingots has dropped steadily for six months.

From these facts an impression may be gained that operations are on a lower plane than they are actually. As a matter of fact the rate of production during October compared most favorably with the best years in history.

Coke and anthracite pig iron production with 124,790 tons per day in May was the highest on record. In five months it dropped by 23,105 tons to 101,685 tons per day in October, a loss of 18.5 per cent. The October production indicated an annual rate of 37,000,000 tons, only 2,000,000 tons short of the total 1916 output, the highest in history. This rate is 1,000,000 tons better than the 36,400,968 tons made in 1920 and over 10,000,000 tons above the 26,850,844 tons produced last year.

Steel ingot production was at its peak in April with 157,776 tons daily average. In six months it tapered down to 131,406 tons per day. This is a loss of 26,370 tons per day, or 16.8 per cent. The October production indicated an annual rate of 41,000,000 tons per year, a figure only 2,500,000 tons less than the highest actual year on record, that of 1917 when 43,619,200 tons of ingots were made. This indicated production is nearly half a million tons better than the 40,881,-

392 tons of 1920 and about 7,000,000 tons better than the 34,568,418 tons of last year.

These figures point out strikingly the high rate of operations at the present time. Further slowing down is expected and production probably will show little improvement during the winter months November and December outputs without doubt will be lower than that of October, but in spite of that, 1923, it seems likely, will establish new production records.

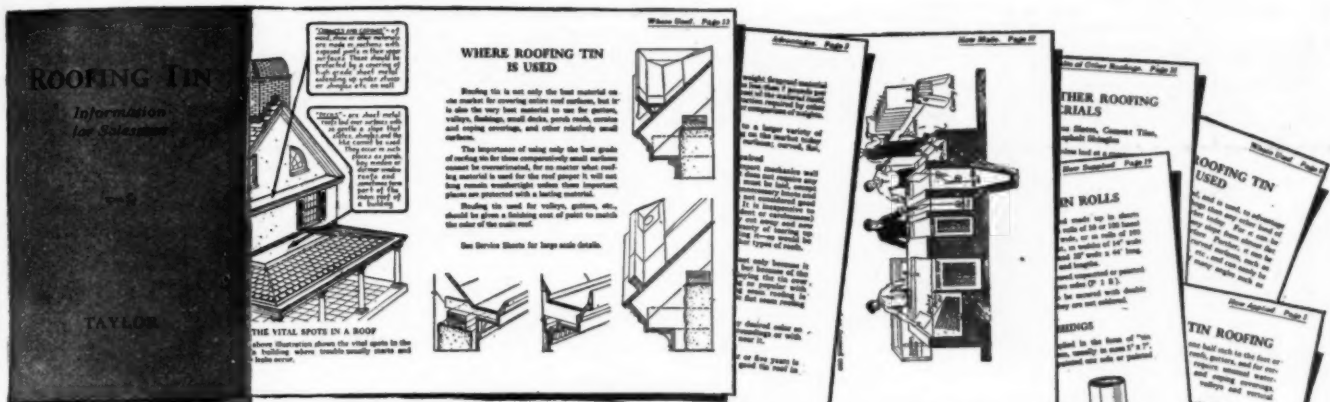
With prices having fallen further to \$20 valley and Buffalo, and \$18.50, Birmingham, buyers apparently are more impressed by the attractiveness of the present market. Many negotiations are under way and in the South a pipe maker is reported to be considering a purchase of 50,000 tons. Sales as yet have lagged behind inquiry.

The market report of Rogers, Brown & Company is as follows:

"There was more activity in the buying of pig iron the past week than for any similar period within the last six months. It is difficult to estimate the quantity sold by reason of the many transactions that were quietly closed without general inquiry. Unquestionably the sentiment of the buyers is more optimistic and is that further shading of prices on the part of sellers is doubtful.

"While sales were numerous and a large quantity of iron was purchased, there is still a considerable amount of inquiry before sellers.

A MOST UNUSUAL BOOK for THOSE WHO SELL TIN ROOFING



UNUSUAL because it gives in concise and condensed form information about roofing tin never before published in one handy volume.

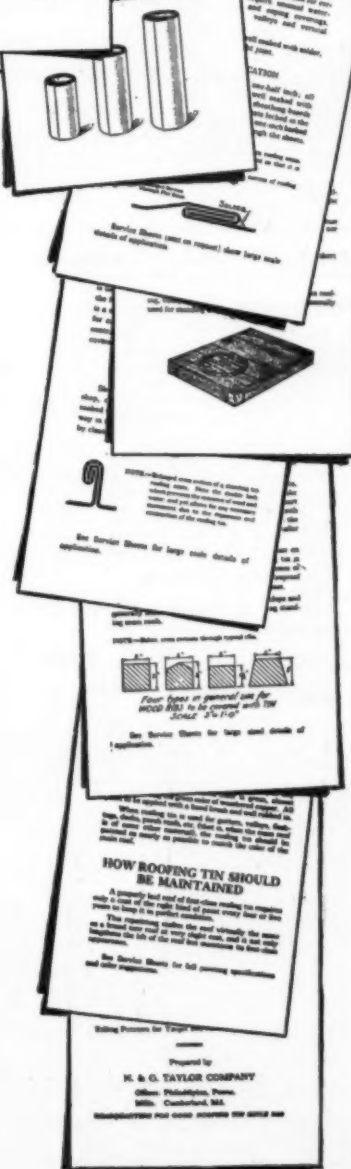
Written from the fullness of a century's experience in the making and marketing of roofing tin, expressly for the instruction of jobbers' salesmen, this book should be of real help to all sheet metal men interested in the increased use of high grade terne plate for roofing purposes.

We would be pleased to send you a copy on request. As the edition is limited we suggest you write us immediately.

N. & G. TAYLOR COMPANY

Offices: 306 Chestnut Street
PHILADELPHIA, PA.

Headquarters for good Roofing Tin since 1810



Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

PIG IRON.	
Chicago Foundry...	23 00
Southern Fdy. No. 2	25 01 to 26 01
Lake Sup. Char. coal	28 04
Malleable	23 00

FIRST QUALITY BRIGHT TIN PLATES.

	Per Box
IC 14x20 112 sheets	\$12 45
IX 14x20	14 95
ICX 14x20 56 sheets	17 57
ICXX 14x20	18 12
ICXXX 14x20	18 45
IC 20x28 112 sheets	27 50
IX 20x28	29 85
ICX 20x28 56 sheets	32 80
ICXX 20x28	33 70
ICXXX 20x28	34 15

TERNE PLATES.

	Per Box
IC 30x28, 40-lb. 112 sheets	\$25 60
IX 30x28, 40-lb.	28 50
IC 30x28, 30-lb.	21 80
IX 30x28, 30-lb.	24 70
IC 30x28, 25-lb.	20 80
IX 30x28, 25-lb.	23 70
IC 30x28, 20-lb.	18 80
IX 30x28, 20-lb.	21 15
IC 30x28, 15-lb.	17 05
IX 30x28, 15-lb.	19 75
IC 30x28, 12-lb.	15 75
IX 30x28, 12-lb.	18 45

COKE PLATES.

Cokes, 80 lbs., base, 20x28.	\$13 85
Cokes, 90 lbs., base, 20x28.	14 10
Cokes, 100 lbs., base, 20x28.	14 45
Cokes, 107 lbs., base, IC 20x28	14 85
Cokes, 135 lbs., base, IX 20x28	17 40
Cokes, 155 lbs., base, 56 sheets	9 75
Cokes, 175 lbs., base, 56 sheets	10 65
Cokes, 195 lbs., base, 56 sheets	11 70

BLUE ANNEALED SHEETS.

Base	per 100 lbs. \$3 50
------	---------------------

ONE PASS COLD ROLLED BLACK.

No. 18-20	per 100 lbs. \$4 50
No. 22-24	per 100 lbs. 4 55
No. 26	per 100 lbs. 4 60
No. 27	per 100 lbs. 4 65
No. 28	per 100 lbs. 4 70
No. 29	per 100 lbs. 4 75

GALVANIZED.

No. 16	per 100 lbs. \$5 10
No. 18-20	per 100 lbs. 5 25
No. 22-24	per 100 lbs. 5 40
No. 26	per 100 lbs. 5 55
No. 27	per 100 lbs. 5 70
No. 28	per 100 lbs. 5 85
No. 30	per 100 lbs. 6 35

BAR SOLDER.

Warranted 50-50	per 100 lbs. \$28 75
Commercial 45-55	per 100 lbs. 28 00
Plumbers	per 100 lbs. 27 00

ZINC.

In Slabs	\$7 40
----------	--------

SHEET ZINC.

Cask lots, stock, 100 lbs.	11 00
Less than cask lots, 100 lbs.	11 50

BRASS.

Sheets, Chicago base	19 3/4 c
Mill Base	17 3/4 c
Tubing, brazed, base	25 3/4 c
Wire, base	18 3/4 c

COPPER.

Sheets, Chicago, base	20 3/4 c
Mill base	20 c
Tubing, seamless, base	24 c
Wire, No. 9 & 10 B. & S. Ga.	17 3/4 c
Wire, No. 11, B. & S. Ga.	17 3/4 c

LEAD.

American Pig	7 68
Bar	8 70

Sheet	
Full Colls.	per 100 lbs. 10 75
Cut Colls.	per 100 lbs. 11 75

TIN.

Pig Tin	per 100 lbs. 44 3/4 c
Bar Tin	per 100 lbs. 45 3/4 c

HARDWARE, SHEET METAL SUPPLIES, WARM AIR HEATER FITTINGS AND ACCESSORIES.

ADZES.

Coopers' Barton's	Net
White's	Net

AMMUNITION.

Shells, Loaded, Peters.	
Loaded with Black Powder 13%	
Loaded with Smokeless Powder	18%
Winchester.	
Smokeless Repeater	
Grade	20 & 4%
Smokeless Leader	
Grade	20 & 4%
Black Powder	20 & 4%
U. M. C.	
Nitre Club	20 & 4%
Arrow	20 & 4%
New Club	20 & 4%
Gun Wads—per 1000.	
Winchester 7-8 gauge 10&7 1/4 %	
9-10 gauge 10&7 1/4 %	
11-28 gauge 10&7 1/4 %	

ASBESTOS.

Paper up to 1/16	6c per lb.
Rollboard	6 1/4 c per lb.
Millboard 3/32 to 1/4	6c per lb.
Corrugated Paper (250 sq. ft. to roll)	\$6.00 per roll

AUGERS.

Boring Machine	40&10%
Carpenter's Nut	50%
Hollow.	
Stearns, No. 4, doz.	\$11 50
Post Hole.	
Iwan's Post Hole and Well	35%
Vaughan's, 4 to 9 in.	\$15 50

AXES.

First Quality, Single Bitted (unhandled, 3 to 4 lb., per doz.)	\$14 00
Good Quality, Single Bitted, same weight, per doz.	13 00

BAR, CROW.

Steel, 4 ft., 10 lb.	\$ 80
Steel, 5 ft., 12 lb.	1 40
Pinch bars, 5 1/4 ft., 24 lb.	1 00

BAR, WRECKING.

V. & B. No. 12	\$0 34
V. & B. No. 24	0 43
V. & B. No. 32 1/2	0 57
V. & B. No. 38	0 48
V. & B. No. 230	0 63

BITS.

All Vaughan and Bushnell.	
Screw Driver, No. 30, each	\$ 27
Screw Driver, No. 1, each	16
Reamer, No. 30, each	41
Reamer, No. 100, each	41
Countersink, No. 13, each	20
Countersink, Nos. 14-15, each	27

BLADES, SAW.

Wood.	
Atkins 30-in.	
Nos.	6 40 26
	\$8 90 \$9 45 \$5 40

BLOCKS.

Wooden	45%
Patent	45%

BLOW TORCHES (See Firepots).

BOARDS.

	Per Doz.
Stove.	
Crystal, 23"	23 90
Wash.	
No. 760, Banner Globe (single)	per doz. \$5 25
No. 652, Banner Globe (single)	per doz. 6 75
No. 801, Brass King	per doz. 5 25
No. 860, Single—Plain	per doz. 6 25
Pump	6 25

BOLTS.

Carriage, Machine, etc.	
Carriage, cut thread, 1/4 x 1/2 and sizes smaller and shorter	50-5%
Carriage sizes, larger and smaller and shorter	40-10%
Machine, 1/4 x 1/2 and sizes smaller and shorter	50-10%
Machine, sizes larger and longer than 1/4 x 1/2	50-2 1/2 %
Stove	70-5%

BRACES, RATCHET.

V. & B. No. 444 3 in.	\$4 54
V. & B. No. 323 3 in.	3 89
V. & B. No. 111 3 in.	3 55
V. & B. No. 11 3 in.	3 02

BRUSHES.

Hot Air Pipe Cleaning.	
Bristle, with handle, each	\$0 85
Fine Cleaning.	
Steel Only, each	\$1 25

BURRS.

Copper Burrs only	40%
-------------------	-----

BUTTS.

Steel, antique copper or dull brass finish—case lots—3 1/2 x 3 1/4—per dozen pairs	\$3 45
4 x 4	4 74

Heavy Bevel steel inside sets, case lots—per dozen sets	\$ 00
Steel bit keyed front door sets, each	2 00

Wrought brass bit keyed front door sets, each	4 00
Cylinder front door sets, each	5 50

CEMENT, FURNACE.

American Seal, 5 lb. cans, net	\$ 45
" 10 lb. cans, "	30
" 25 lb. cans, "	3 00
Asbestos, 5 lb. cans	45
Pecora	per 100 lbs. 7 51

CHAINS.

Sher. Steel Safety Chain.	
500-ft. coll, per ft.	.02
100 to 500 ft., per ft.	.02 1/2
Less than 100 ft., per ft.	.03
Iron Jack Chain.	
Box (12 yds.)	.45

CHIMNEY TOPS.

Iwan's Complete Rev. & Vent.	30%
Iwan's Iron Mountain only.	35%
Standard	30 to 40%

CHISELS.

Cold.	
V. & B. No. 25, 1/4 in., each	\$0 26
V. & B. No. 25, 1/2 in., each	41

V. & B. No. 55, 1/4 in.	0 31
V. & B. No. 55, 1/2 in.	0 43

Round Nose.	
V. & B. No. 65, 1/4 in.	0 29
V. & B. No. 65, 1/2 in.	0 40

Socket Firmer.	
V. & B. No. 50, 1/4 in.	0 31
V. & B. No. 50, 1/2 in.	0 57

CHUCKS, DRILL.

Goodell's, for Goodell's Screw Drivers	List less 35-40%
Yankee, for Yankee Screw Drivers	\$6 00

CLAMPS.

Adjustable.	
No. 100, Door (Stearns)	doz. \$22 00

Carpenters'.	
Steel Bar—List price plus 20%	

Hose.	
Sherman's brass, 1/4-inch	per doz. \$0 45
Double, brass, 1/4-inch, per doz.	1 20

CLINKER TONGS

Front Rank, each	\$1 75
Per doz.	1 85

CLIPS.

Damper.	
Aome, with tall pieces, per doz.	\$1 31
Non Rivet tall pieces, per doz.	31

COPPERS—Soldering.

Pointed Roofing.	
3 lb. and heavier	per lb. 40
2 1/2 lb.	45
2 lb.	45
1 1/2 lb.	50
1 lb.	55

CORD.

No. 7 Std. per doz. banks	\$10 31
No. 8	12 00

CORNICE BRACKES.

Chicago Steel Bending.	
No. 1 to 8 B.	10%

COUPLINGS, HOSE.

Brass	per doz. \$2 31
-------	-----------------

CUT-OFFS.

Kuehn's Korrekt Kutoffs:	
Galv., plain, round or cer. rd	
Standard gauge	40%
26 gauge	10%

DAMPERS.

"Yankee" Hot Air.	
7 inch, each 20c, doz.	\$1 70
8 " " 25c, " "	3 40
9 " " 30c, " "	2 70
10 " " 32c, " "	3 00

Smoke Pipe.	
7 inch, each	\$ 31
8 " " "	40
9 " " "	50
10 " " "	60
12 " " "	80

Reversible Check.	
8 inch, each	\$1 00
9 " " "	1 70

DIGGERS.

Post Hole.	
Iwan's Split Handle (Eureka)	
4-ft. Handle	per doz. \$14 00
7-ft. Handle	per doz. 20 00
Iwan's Hercules pattern, per doz.	14 00

DRILLS.

V. & B. Star, 12-inch Length.	
3/4, 5/16 and 1/2, each	31
1/2, each	34
1, each	51

V. & B. Star, 18-inch Length.	
5/16 and 1/2, each	31
1/2, each	34
1, each	51
1 1/2, each	1 00

EAVES TROUGH.

Milcor	
Galv. Crimpedge, crated	75%

ELBOWS—Conductor Pipe.

Milcor	
Galv., plain or corrugated, round flat	
Crimp, Std. gauge	65%
26 Gauge	40%
24 Gauge	10%

Square Corrugated.	
Milcor	
Standard gauge	45%
26 gauge	30%

Fortico Elbows.	
Standard Gauge Conductor Pipe, plain or corrugated.	
Not nested	70 & 5%
Nested solid	70 & 5%

ELBOWS—Steve Pipe.

1-piece Corrugated, Uniform.	Doz.
5-inch	\$1 40
6-inch	1 60
7-inch	2 10
Special Corrugated.	Doz.
6-inch	\$1 40
7-inch	1 70

SHEET COPPER

FOR ROOFING and CORNICE WORK

ALSO
SPECIAL COLD ROLLED RESQUARED STRIP
Ideal for Conductor, Gutters, Valleys, Flashings,
Gravel Stops, etc.



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KANSAS CITY

WHEELING

ART METAL CEILINGS AND SIDE WALLS

QUALITY—DURABILITY—BEAUTY

Are thoroughly combined in **FRIEDLEY-VOSHARDT** ART METAL CEILINGS AND SIDE WALLS. We have added to our list a great number of new and handsome designs. Special designs can be made if desired. Only the *best* of materials used. We are prepared to serve you. Ceiling Catalog No. 33 on request.

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*Sheets
Conductor
Gutter*

A large stock always on hand. Write for interesting prices.

THE J. M. & L. A. OSBORN COMPANY, Cleveland
Sheet Metal Workers' and Furnacemen's Supplies

C. G. HUSSEY & CO.

Rolling Mills and Office, PITTSBURGH, PA.

Manufacturers of

SHEET COPPER, BOTTOMS, ROLL COPPER, TINNED AND POLISHED COPPER, NAILS, SPIKES, RIVETS, CONDUCTOR PIPE, EAVES TROUGH, ELBOWS, SHOES, MITRES, ETC.

Branch Warehouses in New York, Chicago and St. Louis

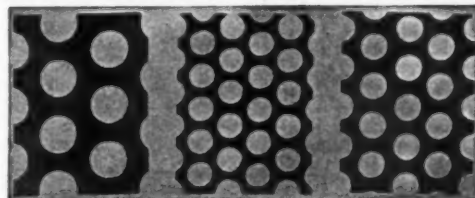
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620 South Michigan Avenue Chicago, Illinois

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All Sizes and Shapes of Holes

In Steel, Zinc, Brass, Copper, Tinplate, etc.

For All Screening, Ventilating and Draining

EVERYTHING IN PERFORATED METAL

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE ST.—CHICAGO, ILL., U. S. A.
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Memorial Monuments

Write for Prices and Illustrations

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Sheet Metal Ornaments
and
STATUARY

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St. Louis, Mo., U. S. A.

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Miter in the
World*

Ask
your Jobber for
CHAMPION MITERS & ENDS
—all Dependable Products—

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PRODUCTS

BRADEN MFG. CO. TERRE HAUTE
INDIANA

Uniform, Collar Adjustable.	
5-inch	Doz. \$2 00
6-inch	Doz. 2 10
7-inch	Doz. 2 00

WOOD FACES—50% off list.

FENCE.	
Field Fence	.....60%
Lawn	.....55%

FILES AND RASPS.

Heller's (American)	.....65-5%
American	.....65-5%
Academy	.....60 & 10%
Black Diamond	.....50-5%
Magie	.....60-10%
Great Western	.....60 & 10%
Kearney & Foot	.....60 & 10%
McClellan	.....60 & 10%
Nicholson	.....60-10%
Simonds	.....60%

FIRE POTS.

Ashton Mfg. Co.	
Complete line	
Firepots and Torches	.....52%
Otto Berns Co.	
No. 1 Furn. Gasoline with	
large shield, 1 gal.	\$ 6 75
No. 3 Furn. Kerosene, 1	
gal.	15 12
No. 10 Brassier, Kerosene	
or Gasoline, 10 gals.	47 52
No. 6 Torch, Gasoline or	
Kerosene, 1 pt.	7 92
No. 83 Torch, Gasoline, 1	
quart	5 40
No. 86 Torch, Gasoline, 1	
pt.	4 05

Clayton & Lambert's.	
East of west boundary line of	
Province of Manitoba, Canada,	
No. Dakota, So. Dakota, Ne-	
braska, Kansas, Oklahoma, Ar-	
izona, San Angelo and Laredo,	
Texas	.....52%
West of above boundary line	48%

Geo. W. Dwyer Mfg. Co.	En.
No. 02 Gasoline Torch, 1	
qt.	\$ 5 55
No. 0350 Kerosene or	
Gasoline Torch, 1 qt.	7 50
No. 10 Tinnors' Furn.	
Square tank, 1 gal.	12 00
No. 15 Tinnors' Furn.	
Round tank, 1 gal.	12 00
No. 21 Gas Soldering	
Furnace	3 60
No. 110 Automatic Gas	
Soldering Furnace	10 50

Double Blast Mfg. Co.	
Gasoline, Nos. 25 and 35	.....60%

Quick Meal Stove Co.	
Vesuvius, F.O.B. St. Louis	80%
(Extra Discount for large	
quantities)	

Chas. A. Homes, Inc.	
Buzzer No. 1	\$ 9 00
" " 2	12 00
" " 22	12 50
" " 42	15 00
" " 48	19 00

FREEZERS—ICE CREAM.

Peerless and Alaska	
1 quart	\$2 95
2 quart	3 45
3 quart	4 10
White Mountain	
1 quart	\$2 50
2 quart	4 00
3 quart	5 70

GALVANIZED WARE.

Pails (Competition), 5 qt.	\$1 80
10-qt.	2 15
12-qt.	2 35
14-qt.	2 65
Wash tubs, No. 1	\$6 10
No. 2	6 80
No. 3	7 90

GARAGE DOOR HARDWARE.	
Stanley	.....All net

GAUGES.

Marking, Mortise, etc.	.....Nets
Wire.	
Diston's	.....25%

GIMLETS.

Discount65% and 10%
----------	------------------

GLASS.

Single Strength, A and B.	
all sizes	.....83 & 85%
Double Strength, A, all sizes	84%

GREASE, AXLE.

Fraser's	
1-lb. tins, 36 to case,	
per case	\$ 4 70
2-lb. tins, 36 to case,	
per case	7 50
5-lb. tins, 12 to case,	
per case	7 30
10-lb. tins, per dozen	10 40
20-lb. tins, per dozen	13 80
25-lb. tins, per dozen	19 80

HAMMERS, HANDLED.

All V. and B.	
Each, net	
Blacksmiths' Hand, No. 0,	
26-oz.	\$1 00

Engineers' No. 1, 26-oz.	1 00
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Farrier's, No. 7, 7-oz.	92
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Machinists', No. 1, 7-oz.	78
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Nail.	
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Vanadium, No. 41, 26-oz.	1 45
--------------------------	------

each	
------	--

Vanadium, No. 41 1/2, 16-oz.	1 45
------------------------------	------

each	
------	--

V. & B. No. 11 1/2, 16-oz.	1 04
----------------------------	------

each	
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Garden City, No. 11 1/2, 16-	
------------------------------	--

oz., each	87
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Tinner's Riveting, No. 1, 8-	
------------------------------	--

oz., each	82
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Shoe, Steel, No. 1, 18-oz.	
----------------------------	--

each	45
------	----

Tack.	
-------	--

Magnetic.	
-----------	--

No. 5, 4-oz., each	72
--------------------	----

HAMMERS, HEAVY.

Farrier's30%
Mason's	
Single and Double Face	.....50%

HANDLES.

Axe.	
Hickory, No. 1, per doz.	4 00
Hickory, No. 2, " "	3 00
1st quality, second growth	6 00
Special white, 2nd growth	5 00

Chisel.	
---------	--

Hickory, Tanged, Firmer	
-------------------------	--

Assorted	per doz. 55c
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Hickory, Socket, Firmer,	
--------------------------	--

Assorted	per doz. 70c
----------	--------------

File	per doz. \$1 20
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Hammer and Hatchet.	
---------------------	--

No. 1 per doz.	\$0 90
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Second growth hickory,	
------------------------	--

per doz.	1 50
----------	------

Soldering.	
------------	--

Per doz.	\$2 40
----------	--------

HANGERS.

Conductor Pipe.	
-----------------	--

Milcor Perfection Wire25%
------------------------	----------

Eaves Trough.	
---------------	--

Steel hangers30%
---------------	----------

Triple Twist10%
--------------	----------

Milcor Scipine Wire20%
---------------------	----------

Milcor Triplex Wire15%
---------------------	----------

Milcor Milwaukee Extension15%
----------------------------	----------

Milcor Steel (galv. after form-	
---------------------------------	--

ing) List plus12 1/2%
----------------	--------------

Milcor Selflock E. T. Wire,	
-----------------------------	--

List plus40%
-----------	----------

HASPS.

Hinge, Wrought, with staples, Net	
-----------------------------------	--

HATCHETS.

V. and B. Supersteel.	
Each	

Broad, No. 1, 24-oz.	\$1 42
----------------------	--------

Half, No. 1, 15-oz.	1 25
---------------------	------

Half, No. 2, 27-oz.	1 37
---------------------	------

Claw, No. 1, 19-oz.	1 31
---------------------	------

Flooring, No. 1, 20-oz.	1 43
-------------------------	------

Shingling, No. 1, 17-oz.	1 30
--------------------------	------

Lathing, No. 1, 14-oz.	1 30
------------------------	------

Lathing, No. 2, 17-oz.	1 25
------------------------	------

Vanadium Steel.	
-----------------	--

Half, No. 62, 22-oz.	\$1 32
----------------------	--------

Underhill Pattern Lathing,	
----------------------------	--

3 row, 19-oz.	2 29
---------------	------

HINGES.

Heavy Strap, in Bundles.	
--------------------------	--

4 inch, dozen prs.	\$1 12
--------------------	--------

5 " " "	1 57
---------	------

6 " " "	1 92
---------	------

8 " " "	2 21
---------	------

Extra Heavy T in Bundles.	
---------------------------	--

4 inch, dozen prs.	\$1 74
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5 " " "	1 85
---------	------

6 " " "	2 21
---------	------

8 " " "	2 57
---------	------

HOES.

GardenNet
--------	----------

HOOKS.

Box.	
------	--

V. and B. No. 2, each	\$0 25
-----------------------	--------

Conductor.	
------------	--

Milcor	
--------	--

"Direct Drive" Wrought	
------------------------	--

Iron for wood or brick	15%
------------------------	-----

Cotton.	
---------	--

V. and B. No. 2, each	24
-----------------------	----

Hay.	
------	--

V. and B. No. 1, each	26
-----------------------	----

Bar Meat.

V. and B. No. 26, 3/4",	
-------------------------	--

each	09
------	----

V. and B. No. 28, 1/4",	
-------------------------	--

each	16
------	----

Screw Meat.	
-------------	--

V. and B. No. 2, per gro.	6 50
---------------------------	------

Butchers' "B."	
----------------	--

V. and B. No. 6, each	03
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V. and B. No. 8, each	11
-----------------------	----

HOSE.

Per Ft.	
---------	--

1/2-in. 3 ply molded	3 1/2c to 12 1/2c
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1/2-in. cord	3 1/2c to 10c
--------------	---------------

1/2-in. wrapped	13 1/2c
-----------------	---------

HUMIDIFIERS.

"Front-Rank," Automatic.	
--------------------------	--

In single lots50%
----------------	----------

In lots of 10 or more50-55%
-----------------------	-------------

In lots of 25 or more50-10%
-----------------------	-------------

Vapor pans, etc., each50%
------------------------	----------

IRONS.

Sad.	
------	--

Genuine Mrs. Potts, nickel	
----------------------------	--

plated, per set	\$1 55
-----------------	--------

Asbestos No. 70, per set	2 10
--------------------------	------

Asbestos No. 100, per set	2 30
---------------------------	------

E. C. Stearns.	
----------------	--

No. OA Corner, doz. sets	\$2 50
--------------------------	--------

No. OB	2 75
--------	------

KNIVES.

Butcher.	
----------	--

Beechwood Handles, 6-inch	
---------------------------	--

blade35%
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Beechwood Handles, 7-inch	
---------------------------	--

blade35%
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Beechwood Handles, 8-inch	
---------------------------	--

blade25%
-------	----------

Cooper's Hoop25%
---------------	----------

Drawing.	
----------	--

Standard25%
----------	----------

Adjustable25%
------------	----------

Barton's Carpenters'25%
----------------------	----------

Hay.	
------	--

Iwan's Solid Socket25%
---------------------	----------

Heath's25%
---------	----------

Iwan's Sickle Edge25%
--------------------	----------

Iwan's Imp'd Serrated25%
-----------------------	----------

Hedge.	
--------	--

Challenge25%
-----------	----------

Diston's No. 125%
----------------	----------

Putty.	
--------	--

Common25%
--------	----------

Lander's25%
----------	----------

Scraping.	
-----------	--

Beech Handles25%
---------------	----------

AREX

WRITE FOR THIS BOOK

AREX Ventilation will open new channels of profit for you. This book shows you many interesting applications with complete data. Ask for book 81-A—it will be sent free of charge.

AREX COMPANY

J. C. Kernen, Pres.

1581 Conway Building, Chicago

THE ORIGINAL SIPHONAGE VENTILATOR



"THE STANDARD"

Ventilator



IS of the rotatable type and swings absolutely free in the slightest draft. The construction is scientifically correct and unusually strong. It works perfectly in all kinds of weather and handles 50% more air than stationary ventilators of equal size. Order from your jobber. Write for our catalog and prices today.

Manufactured by

STANDARD VENTILATOR CO.
LEWISBURG, PA.

CHICAGO STEEL SLITTING SHEAR

**LIGHT—POWERFUL
DURABLE**



Capacity 10 gauge sheets
Any Length or Width
Flat Bars 3/16 x 2"
Weight 22 pounds
Price \$12.50 Net
F. O. B. Chicago

Made of pressed steel and equipped with hold-down. Blades of highest grade crucible steel. Most indispensable high grade shears made. Equal to other shears selling at over twice the price. **ORDER YOURS TODAY**

DREIS & KRUMP MFG. CO., 2915 S. Halsted St., Chicago

CORTRIGHT

METAL SHINGLE

Hand-Dipping Gives Shingles a Heavier Coating

These shingles are first formed of prime roofing tin. Then each is dipped separately in a bath of molten zinc. Edges are covered as well as sides. We also make shingles from tight-coated sheets and of tin. The latter we paint red or green as preferred.

If you are not familiar with Cortright Metal Shingles we will be glad to tell you about them and to send our booklet concerning that roof.

CORTRIGHT
Philadelphia

METAL ROOFING CO.
Chicago

STANDARD

SINCE 1887

SOFT

The deciding word in the
SHEET METAL SHOP

Inland Sheets

are soft and workable

Inland Copper Alloy Quality

insures longer life

INLAND STEEL COMPANY

38 South Dearborn St., Chicago

Works:

Indiana Harbor, Ind.
Chicago Heights, Ill.

Branch Offices
Milwaukee St. Louis
St. Paul

They are standing on

KANT-BREAK LADDERS

KANT-BREAK Ladders are being used by thousands of sheet metal contractors throughout the states because

They are

SAFE

DURABLE

LIGHTWEIGHT

ECONOMICAL

and they

KANT-BREAK

THERE'S a 3/4-inch steel rod through the center of each rung firmly bolted to the sides.

There's a No. 7 Bessemer tinned steel wire grooved in on both sides of the rails, countersunk at both ends.

It's the only ladder of its kind on the market—order yours now.

KANT-BREAK LADDERS, Inc.

Ninth and Monroe Streets
ST. LOUIS, MO.

*Write for
circulars
and
prices
today.*



PAIRS.

Cream.		
14-qt. without gauge.	per doz.	\$9 50
18-qt. without gauge.	per doz.	11 00
20-qt. without gauge.	per doz.	11 75

Sap.

10-qt. IC Tin	per doz.	\$4 00
13-qt. IC Tin	per doz.	6 50

Stock.

Galv. qts. 14	16	18	20
Per doz.	\$9 75	10 75	12 75

Water.

Galvanized qts.	10	12	14
Per doz.	\$5 75	6 50	7 25

PASTE

Asbestos Dry Paste:		
200-lb. barrel		\$15 00
100-lb. barrel		8 00
35-lb. pail		3 25
10-lb. bag		1 00
5-lb. bag		55
2 1/2-lb. cartons		30

PINCERS.

All V. & B.				
Carpenters', cast steel,				
No.	5	8	10	12
Each	\$0 43	\$0 52	\$0 61	\$0 71
Blacksmiths', No. 10	\$0 64			

PIPE.

Conductor.		
"Interlock" Galvanized.		
Crated and nested (all gauges)	60-20%	
Crated and not nested (all gauges)	60-15%	
Square Corrugated A and B and Octagon.		
20 Gauge	60-10%	
28 "	60-10%	
36 "	60-10%	
44 "	60-10%	

"Interlock."

Crated and nested (all gauges)	60-20%	
Prices for Galvanized Toncan Metal, Genuine O. H. Iron, Lyonmore Metal and Keystone C. B. on application.		

Stove.

Per 100 joints.		
28 gauge, 5 inch E. C.		
nested		\$17 00
28 gauge, 6 inch E. C.		
nested		18 00
28 gauge, 7 inch E. C.		
nested		19 00
28 gauge, 8 inch E. C.		
nested		15 00
28 gauge, 6 inch E. C.		
nested		16 00
28 gauge, 7 inch E. C.		
nested		18 00
28 gauge, 8 inch E. C.		
nested		14 00
30 gauge, 7 inch E. C.		
nested		16 00
T-Joint Made up.		
6-inch	per 100	\$40 00

Furnace Pipe.

Double Wall Pipe and Fittings	33 1/2%	
Single Wall Pipe, Round Pipe Fittings	33 1/2%	
Galvanized and Back Iron Pipe, Shoes, etc.	33 1/2%	
Milcor Galvanized	40%	

PLANES.

Stanley Iron Bench	Net	
--------------------	-----	--

SAWERS.

(V. & B.)		
Nut, No. 3, each		\$2 00
" No. 5, each		64
" No. 25, each		69
Gas, No. 7, each		55
" No. 1, each		61
" No. 13, each		37
Using or Crimping.		
No. 25, each		64
Butter's Pattern.		
No. 6 each		61
No. 8 each		74
Double Duty, No. 105		50

POINTS, GLAZIERS'.

No. 1, 3 and 3. per doz. pkgs.	\$50	
--------------------------------	------	--

POKERS, STOVE.

Wrt Steel, str't or bent.	per doz.	\$0 75
Nickel Plated, coll handles	"	1 10

POKERS, FURNACE.

Each		\$0 50
------	--	--------

FULLEYS.

Furnace Tackle	per doz.	\$0 60
Per gross		6 00

" Screw (en-cased)	per doz.	\$0 25
--------------------	----------	--------

Ventilating Register.

Per gross		\$9 00
Small, per pair		0 30
Large, per pair		0 50

PUNCHES.

Machine.	Each.	
V. & B., No. 11-13, 1 1/4 x 6		\$0 19
V. & B., No. 20, 1/2 x 9		27
V. & B., No. 10, 1/2 x 10		29
V. & B., No. 1-6, 1/2 x 6		12

Center.

V. & B., No. 50, 1/2 x 4		\$0 14
--------------------------	--	--------

Belt.

V. & B., No. 101-103		\$0 24
V. & B., No. 108-109		33
V. & B., No. 25, asst.		3 30

Samson Line.

No. 1 Hand	Doz. lots or less	40%
No. 2 Hand	3 doz. lots	40%
No. 4 Hand	6 doz. lots or more	50%

No. 3 Bench	Less than doz. lots	25%
	Doz. lots or more	40%

Extra Punches and Dies for Samson:

No. 1 Hand	Less than doz. lots	25%
No. 2 Hand	Doz. lots	33 1/2%
No. 4 Hand	3 doz. lots	40%
No. 3 Bench	6 doz. lots or more	50%
	Less 40 & 10%	

FUTTY.

Commercial Putty, 100-lb. kits		\$3 55
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QUADRANTS.

Malleable Iron Damper	10%	
-----------------------	-----	--

FLOOR REGISTERS AND BORDERS.

Cast Iron	20%	
Steel and Semi-Steel	33 1/2%	
Baseboard	33 1/2%	
Adjustable Ceiling Ventilators	33 1/2%	

Register Faces—Cast and Steel		
Japanned, Bronzed and Plated		
4x6 to 14x14	33 1/2%	
Large Register Faces—Cast		
14x14 to 38x42	60%	
Large Register Faces—Steel		
14x14 to 38x42	65%	

ROOFING.

Per Square		
Best grade, slate surf. prep'd	\$1 25	
Best talc surfaced	2 20	
Medium talc surfaced	1 50	
Light talc surfaced	95	
Red Rosin Sheetting, per ton	\$72 00	

ROPE.

Cotton.		
Shal.		
1st Quality, base 13 1/4% to 14 1/4%		
No. 2		13 1/4%
Manila.		
1st Quality standard brands		16 1/4%
No. 2		15 1/4%
Hardware Grade, per lb.		13 1/4%

SAWS.

Butchers'.		
Atkins No. 2, 14-in.		\$12 75
" No. 2, 13-in.		14 30
" No. 7, 16-in.		15 85
" No. 2, 22-in.		15 92
" No. 7, 20-in.		18 05
" No. 7, 24-in.		20 20
" No. 7, 28-in.		22 35

Compass.

Atkins No. 2, 10-in.		\$ 5 45
" No. 10, 10-in.		5 60
" Blades, No. 2, 10-in.		3 25
" " No. 2, 10-in.		3 30

Cross-Cut.

Atkins No. 221, 4 ft.		\$3 02
" No. 221, 6-ft.		4 45
" No. 221, 8-ft.		6 07

Hand.

Copper Burrs only		30%
" No. 98, 20-in.		21 70

Hand and Rip.

Atkins No. 54, 20-in.		\$19 50
" No. 54, 26-in.		24 40
" No. 53, 16-in.		18 10
" No. 53, 20-in.		22 90
" No. 53, 24-in.		26 40
" No. 53, 28-in.		31 45
" No. 53, 30-in.		34 15

Keyhole.

Atkins No. 1, complete		\$3 10
" No. 2, complete		3 70

Miter Box.

Atkins No. 1, 4x20		\$32 45
" No. 1, 5x22		38 90
" No. 1, 6x22		42 30

Pruning.

Atkins No. 20, 12-in.		\$ 8 45
" No. 10, 16-in.		18 15

Wood.

Atkins No. 202		\$ 7 19
" No. 218		8 75
" No. 208		15 50
" No. 1509		16 55

SCRAPERS.

Box.	No. 6, six blades each	25c
Hog.	No. 6, each	25c
Floor (Stearns).	No. 10, each	\$11 50

SCREEN DOOR HINGES.

Cast Iron	gross	\$13 00
Steel		9 50

SCREWS.

Wood.		
F. H. Bright		80%
R. H. Blued		75%
F. H. Jap'd		74%
F. H. Brass		75%
R. H. Brass		74%

Sheet Metal.

No. 7, 1/2 x 1/2, per gross	\$0 55	
No. 10, 1/2 x 1/2, per gross	75	
No. 14, 1/2 x 1/2, per gross	90	

SCREW DRIVERS.

Uncle Sam Standard Head.		
3 inches, each		\$ 45
5 inches, each		53
8 inches, each		63
12 inches, each		1 02

Uncle Sam Insulated Head.

3 inches, each		\$ 49
5 inches, each		57
8 inches, each		76
12 inches, each		1 14

SETS.

Nail.		
V. & B.		
No. 100, in cardboard boxes	doz.	\$1 55
No. 100, in wooden boxes	doz.	1 58
No. 20, assorted	doz.	30
No. 5, in cardboard boxes	doz.	1 25
No. 5, in wooden boxes	doz.	1 30

Rivet.

V. & B.		
Farmers'		\$0 10
Tanners' 3-4		0 40
00-0		0 30

Saw.

Atkins No. 10	per doz.	\$3 30
" No. 13	"	3 40

SHEARS.

Per Doz.		
Nickel Plated, Straight, 6"		\$13 50
" " " 7"		14 00
" " " 8"		16 00
Japanned, Straight	6"	11 00
" " " 7"		12 40
" " " 8"		13 50

SHEARS, TINNERS' & MACHINISTS'.

Viking		\$32 00
Lennox Throatless.		
No. 13		35%
Shear blades		15%
(f.o.b. Marshalltown, Iowa.)		
Peerless Steel Squaring.		
Foot Power.		
No. 1—30", 18 ga. cap.		15%
No. 2—36", 18 ga. cap.		15%
No. 4—52", 18 ga. cap.		15%
No. 10—120", 22 ga. cap.		15%
No. 4A—52", 16 ga. cap.		15%

Cast Iron Foot Power.		
No. 01, 30", 18 ga. cap.		15%
Power Driven.		
(No. 100 Series, 2 Shaft Drive.)		
No. 142—42", 18 ga. cap.		15%
(No. 200 Series, 2 Shaft Underneath Drive.)		
No. 242—42", 14 ga. cap.		15%
(No. 300 Series, 3 Shaft Underneath Drive.)		
No. 342—42", 10 ga. cap.		15%
No. 372—72", 10 ga. cap.		15%
(No. 500 Series, 3 Shaft Underneath Drive.)		
No. 596—96", 10 ga. cap.		15%
(No. 600 Series, 3 Shaft Underneath Drive.)		
No. 6120—120", 3/16" cap.		15%

SHINGLES.

Per Square		
Zinc (Illinois)		\$13 00

SHOES.

Milcor.		
Galv. Std. Gauge, Plain or corg. round flat crimp.		65%
26 gauge round flat crimp.		40%
24 gauge round flat crimp.		10%
Conductor		65%

SHOVELS AND SPADES.

Coal.				
Hubbard's.				
No.	A	B	C	D
1	\$16 00	15 10	14 45	13 70
2	16 35	15 60	14 85	14 10
3	16 75	16 00	15 25	14 45
4	17 10	16 35	15 60	14 85

Post Drains & Ditching.

Hubbard's.			
Size	A	B	C
14"	\$17 15	\$16 40	\$15 05
16"	17 50	16 75	16 00
18"	17 85	17 10	16 35
20"	18 20	17 45	16 70
22"	18 55	17 80	17 05

Alaska Steel.		
D-Handle	per doz.	\$3 50
Long Handle	"	3 00

SIFTERS.

Genuine Hunters, doz.		\$2 50
-----------------------	--	--------

SKATES.

Ice, Men's and Boys'.		
Per Pair		
Key Clamp—rocker—bright finish		\$ 75



No. 1 Fire Pot

Ask for Latest Price

Strong and Powerful

The No. 1 is the best general utility Fire Pot made. It has many improved patented features. Tank is of drawn steel fitted with cushion band at base, preventing leaks. It is tinned inside and out (rust-proof). Double Needle Burner burns low grade fuel, producing 300 degrees more heat. Has Cleaner Needle. Both Needles are blunt, overcoming 60% of Burner troubles. Top Section is removable. No. 1 saves time and fuel. Jobbers supply at factory prices. Write for a catalogue.

CLAYTON & LAMBERT MFG. CO.
10635 Knodell Ave., DETROIT, MICH., U.S.A.



BECAUSE it typifies perpetual life the Phoenix is a fit symbol of Torrid durability.



Geo. W. Diener Mfg. Co., Chicago, Ill.

No. 25 DOUBLE BLAST
Tinner's Fire Pot

DOUBLE BLAST FIRE POTS

Gasoline Burning

The **GENERATOR** used in **DOUBLE BLAST FIRE POTS** is the most powerful generator ever put on a fire pot. It is made of brass and will not rust or corrode. It has no packing of any kind, and as it has no small channels it cannot clog but will always burn a blue flame. Our No. 25 Fire Pot shown herewith has a large brass pump one inch in diameter. The tank is made of galvanized steel and is firmly fastened to the base. The burner on this fire pot is so arranged that the two hot blasts are forced from the outside to the center so that the iron in the fire receives both hot blasts. There are more features that you should know about.

Our latest catalog describes our line in full. Write for it today.

DOUBLE BLAST MFG. CO.
NORTH CHICAGO, ILL.

HOTTEST and QUICKEST

Heating Gas Soldering Furnaces built without a Blower.

BUZZER

Reg. U. S. Pat. Off.

Automatic Blast Gas Soldering Furnaces, Soft Metal Furnaces, Burners, etc.

For the past 12 years they have withstood severest tests.

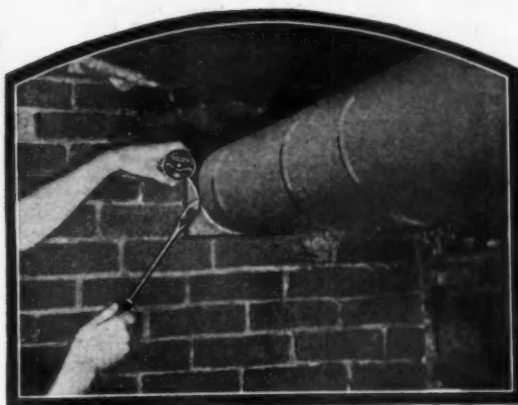
SENT ON 10 DAYS' TRIAL

Complete folder sent on request

BUZZER No. 22
Complete With Pot

Patented June 14, 1921

CHAS. A. HONES, INC. 123 Grand Avenue
Baldwin, N. Y.



A Handier Solder

Sheet metal workers who have used clumsy bar or solid wire solder with a separate flux, really appreciate how handy Kester Acid-Core Wire Solder is.

First: The tiny pockets inside the hollow wire form of Kester supply a scientific flux at the right time, thereby saving time, labor and material over the old-fashioned way.

Second: The pound spools and coils fit one's hand comfortably, leaving the other hand free for using the most convenient form of heat.

Third: The entire job is always in view, the narrow wire of Kester puts both solder and flux where it belongs without hiding the parts.

"Sample for Test Upon Request"

Sold by live dealers everywhere in one pound coils, in cartons, and on one, five and ten pound spools

Manufacturers

CHICAGO SOLDER COMPANY

4241 Wrightwood Avenue, Chicago

Direct Factory Representatives:

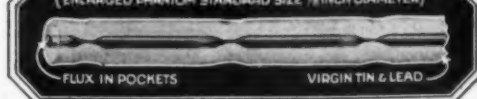
THE FAUCETTE HUSTON CO.
Chattanooga, Tenn.

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216 Market St.
San Francisco, Cal.

RICHARD F. ELY
66 W. Broadway
New York City

KESTER Acid Core WIRE SOLDER

(ENLARGED PHANTOM STANDARD SIZE 1/8 INCH DIAMETER)



FLUX IN POCKETS

VIRGIN TIN & LEAD

Requires Only Heat

SNIPS, TINNERS'.

Clover Leaf	40 & 10%
National	40 & 10%
Star	50%
Milcor	Net

SQUARES.

Steel and Iron	Net
(Add for bluing, \$3.00 per doz. net)	
Mitre	"
Try	"
Try and Bevel	"
Try and Mitre	"
Fox's	per doz. \$6.00
Winterbottom's	10%

STAPLES.

Blind.	
Barbed	per lb. 21c @ 22c
Butter, Tub	" 16 @ 19c
Fence	
Polished	per 100 lbs. \$5 45
Galvanized	" 6 15
Netting.	
Galvanized	per 100 lbs. \$6 54
Wrought.	
Wrought Staples, Hasps and	
Staples, Hasps, Hooks and	
Staples, and Hooks and	
Staples	50 & 10%
Extra heavy	35%

STONES.

Axe.	
Hindustan	per lb. New Nets
More Grite	" "
Washita	" "
Emery.	
No. 126	per doz. New Nets
Oil Mounted.	
Arkansas Hard	
No. 7	per doz. New Nets
Arkansas Soft.	" "
Washita No. 717	" "
Oil-Unmounted.	
Arkansas Hard	per lb. New Nets
Arkansas Soft.	" "
Lilly White	" "
Queer Creek	" "
Washita	" "
Scythe.	
Black Diamond	per gro. New Nets
Crescent	" "
Green Mountain	" "
LaMolle	" "
Extra Quinine	" "
bog	" "
Red End	" "

STOPS, BENCH.

No. 10 Morrill pat-	
tern	per doz. \$11 00
No. 11 Stearns pat-	
tern	" 10 00
No. 15 Smith pat-	
tern	" 7 00

STOPPERS, FLUE

Common	per doz. \$1 10
Gem. No. 1	" 1 10
Gem. flat, No. 3	" 1 00

STRETCHERS.

Carpet.	
Bullard's	per doz. \$3 90
Excelsior	" 5 25
Malleable Iron	" 70
Perfection	" 6 30
King	" 4 50

Wire.	
O. S. Elwood, No. 1	per doz. Nets
O. S. Elwood, No. 2	" "

SWIVELS

Malleable Iron	per lb. \$0 10
Wrought Steel	per gro. 4 50

TACKS.

Bill Posters' 6-oz. 25-lb. boxes	
per lb.	15c
Upholsterers' 6-oz., 25-lb.	
boxes, per lb.	15 1/2c

TAPES, MEASURING.

Asses' Skin	List & 40%
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THERMOMETERS.

Tin Case	per doz. 30c & \$1 25
Wood Backs	" 2 00 & 12 00
Glass	" 12 00

TIES.

Bale.	
Single Loop, carload	
lots	75 & 7%
Single Loop, less than	
car lots	70 & 15%

TRAPS.

Mouse and Rat.	Per Gross
Sure Catch Mouse Traps	\$ 2 10
Vim Mouse Traps	2 10
Short Stop Mouse Traps	1 80
Wood Choker Mouse	
Traps, 4 hole	10 25

Sure Catch Rat Traps	Per Doz. \$0 90
Dead Easy Rat Traps	1 00
Packed in One Bushel Band Stave	
Baskets.	

List per Bushel	
Sure Catch Mouse Traps	(360 Traps) \$ 5 25
Short Stop Mouse Traps	(360 Traps) 4 50
Sure Catch Rat Traps	(54 Traps) 3 60
Short Stop Rat Traps	(54 Traps) 3 15

Assorted Mouse and Rat Traps.	
List per Bushel.	
Sure Catch (216 Mouse	
Traps and 26 Rat Traps)	\$4 90
Short Stop (216 Mouse	
Traps and 26 Rat Traps)	4 25

TROWELS.

Cement.	
Atkins No. 6	\$19 50
No. 9	25 50

TWINE.

White Cotton.	
Eureka, 4-ply	per lb. 30c
Jute.	
3-ply and 6-ply Bale Lots	22 1/2c

VALLEY.

Milcor	
Galv. formed or roll	60%

VENTILATORS.

Standard	30 to 40%
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VISES.

No. 700 Hand.	
Inches	4 1/2 5 5 1/2
Doz.	\$11 15 13 00 14 35
No. 701.	In. 4 5 6
Doz.	\$11 15 13 00 16 70
No. 1, Genuine Wentworth,	
Noiseless Saw	per doz. 9 25
No. 3, Genuine Wentworth,	
Noiseless Saw	per doz. 12 75
No. 500, All Steel Folding	
Saw	per doz. 16 00

WASHERS.

Over 1/2 in. barrel lots	
per 100 lbs.	\$6 25
Iron and Steel.	
In. 5/16 3/4 1/2 3/4 7/8	7 2/5c

WEATHER STRIPS.

Metallic Stitched.	
1/2 in., per 100 ft.	\$1 80
3/4 in., per 100 ft.	2 20
Wood and Felt.	
1/2 in., per 100 ft.	\$1 56
3/4 in., per 100 ft.	1 56

WEIGHTS.

Hitching	per lb. Nets
Sash—f. o. b. Chicago	
Smaller lots, per ton	\$47 50

WHEEL BARROWS.

Common Wood Tray	\$3 75
Steel Tray, Competition	4 50
Steel leg, garden	6 00

WIRE.

Plain annealed wire, No. 8	
per 100 lbs.	\$3 70
Galvanized barb wire, per	
100 lbs.	4 10
Wire cloth—Black painted,	
12-mesh, per 100 sq. ft.	2 35
Cattle Wire—galvanized	
catch weight spool, per	
100 lbs.	4 60
Galvanized Hog Wire, 80 rod	
spool, per spool	3 98
Galvanized plain wire, No. 9,	
per 100 lbs.	4 15
Stove Pipe, per stone	1 10

WOOD FACES.

50% off list.

WRENCHES.

Coas Steel Handle,	6-in. 40-10%
" "	8-in. 40-10%
" "	10-in. 40-10%
" "	12-in. 40-10%
Coas Knife-Handle,	6-in. 40-10%
" "	8-in. 40-10%
" "	10-in. 40-10%
" "	12-in. 40-10%
Coas All Patterns	40-10%

WRINGERS.

No. 790, Guarantee	per doz. \$49 50
No. 770, Bicycle	" 47 00
No. 670, Domestic	" 48 50
No. 110, Brighton	" 39 00
No. 750, Guarantee	" 51 00
No. 740, Bicycle	" 48 50
No. 22, Pioneer	" 35 50
No. 2, Superb	" 25 50

ADVERTISERS' INDEX

The dash (—) indicates that the advertisement does not appear in this issue.

A

Aeolus Dickinson Co.	—
American Brass Co.	—
American Furnace Co.	6
American Rolling Mill Co.	—
American Steel & Wire Co.	47
American Stove Co.	—
American Wood Register Co.	—
Arex Company	39
Ashton Mfg. Co.	—

B

Berger Bros. Co.	43
Bernz Co., Otto	43
Bertsch & Co.	43
Braden Mfg. Co.	37
Brillion Iron Works	—
Bullard & Gormley Co.	47
Burgess Soldering Furnace Co.	—
Burton Co., W. J.	—

C

Callender Soldering Process Co.	50
Chicago Elbow Machine Co.	—
Chicago Solder Co.	41
Clark & Co., Geo. M.	—
Clark-Smith Hardware Co.	43
Clayton & Lambert Mfg. Co.	41
Cleveland Castings Pattern Co.	11
Coes Wrench Co.	47
Copper & Brass Research	
Association	33
Cornish & Co., J. B.	—
Cortright Metal Roofing Co.	39

D

Dieckmann Co., Ferdinand	—
Diener Mfg. Co., Geo. W.	41
Double Blast Mfg. Co.	41
Dreis & Krump Mfg. Co.	39-43
Dunning Heating Supply Co.	—

E

Ewert & Kutschied Mfg. Co.	—
----------------------------	---

F

Fanner Mfg. Co.	—
Farquhar Furnace Co.	—
Federal Varnish Co.	—
Forest City Fdy. & Mfg. Co.	7
Fox Furnace Co.	3
Friedley-Voshardt Co.	37

G

Geroch Bros. Mfg. Co.	37
Gohmann Bros. & Kahler	—

H

Hall-Neal Furnace Co.	5
Harrington & King P'f'g Co.	37
Hart & Cooley Co.	9
Haynes-Langenberg Mfg. Co.	2
Heller Bros.	—
Henry Furnace & Fdy. Co.	—
Hessler Co., H. E.	—
Hess-Snyder Co.	7
Homer Furnace Co.	5
Hones, Inc., Chas. A.	41
Honeywell Heating Spec. Co.	—
Hussey & Co., C. G.	37
Hyfield Mfg. Co.	—

I

Independent Register & Mfg.	
Co.	8
Inland Steel Co.	39
International Heater Co.	—

K

Kant-Break Ladders, Inc.	39
Kirk-Latty Mfg. Co.	11
Kruse Co.	—

L

Lalace & Grosjean Mfg. Co.	—
Lamneck & Co., W. E. Back Cover	—
Lennox Furnace Co.	—
Lupton's Sons, David	—

M

Machine Appliance Corp.	—
Majestic Co.	—
Malleable Iron Range Co.	—
Maplewood Machinery Co.	—
Marshalltown Mfg. Co.	48
May-Fieberger Co.	—
Merchant & Evans Co.	37
Meyer Furnace Co., The	—
Meyer & Bros. Co., F.	—
Meyer Mfg. Co., Fred J.	50
Michigan Stove Co., The	—
Miles Furnace Fan Co.	8
Milwaukee Corr. Co., Front Cover	—
Monroe Fdy. & Furnace Co.	—
Mt. Vernon Furn. & Mfg. Co.	4

N

National Institute of Account-	
ing, Inc.	—
New Jersey Zinc Co., The	—
Northwestern Stove Repair Co.	11

O

Osborn Co., The J. M. & L. A.	37
-------------------------------	----

P

Peck, H. E.	49
Peck, Stow and Wilcox Co.	—
Penn. & Atlantic Seaboard	—
Hdw. Assn., Inc.	51

Q

Quick Furnace & Supply Co.	—
Quick Meal Stove Co.	43
Quincy Pattern Co.	11

R

Roesch Enamel Range Co.	11
Ross-Gould	—
Ryerson & Son, Jos. T.	—

S

Scheible-Moncrief Heater Co.	6
Schwab & Sons Co., R. J.	12
Spaulding Hotel	—
Special Chemicals Co.	—
Standard Furn. & Supply Co.	4
Standard Ventilator Co.	39
Stearns Register Co.	8
St. Clair Foundry Co.	4
St. Louis Tech. Inst.	50
Stove Dealers Supply Co.	—
Sullivan-Geiger Co.	50

T

Taylor Co., N. & G.	35
Thatcher Furnace Co.	7
Tuttle & Bailey Mfg. Co.	9

U

Utica Heater Co.	2
------------------	---

V

Vedder Pattern Works	11
Viking Shear Co.	—

W

Walworth Run Fdy. Co.	—
Waterman-Waterbury Co.	—
Whitney Mfg. Co., W. A.	—
Whitney Metal Tool Co.	—
Wise Furnace Co.	—